Linux user Mike Prince plugs IBM software that's due to be supported in the Linux kernel

Developers know [illegible] questions about the IBM-Lenovo

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FEBRUARY 7, 2005 • VOL. 39 • NO. 6 • $5/COPY

Telecom Consolidation Raises Concerns for IT

Users expect decreased competition, worry about possible impact on customer service

BY MATT HAMBLEN

Network managers are bracing for changes amid the merger frenzy in the telecommunications industry, which intensified last week with SBC Communications Inc.'s agreement to buy AT&T Corp. and reports that Qwest Communications International Inc. was in talks to gobble up MCI Inc.

In the long term, the ongoing consolidation will likely reduce the choices that corporate users have when they put their network services contracts out for bid, some users and analysts said.

But several AT&T customers noted that their immediate concerns are making sure that SBC honors their contracts and finding out how proposed layoffs of more than 12,000 workers over the next year will alter the account teams they rely upon to set up

Telecom, page 43

Sun Plans to Offer Hourly Rates on CPUs

Vendor to sell access to systems on utility basis

BY PATRICK THIBODEAU

Arguing that computing power is no different than electric power, Sun Microsystems Inc. last week said it will allow users to buy CPU cycles on an hourly basis, either directly from Sun or through an electronic trading market.

Corporate users in search of computing time, as well as speculators, will be able to bid on available CPU hours through Archipelago Holdings Inc., a Chicago-based electronic stock exchange. For example, a company that buys 10,000 CPU hours through the new Sun Grid compute utility plan and then discovers that it needs just 8,000 could sell

Sun, page 16

INSIDE

Arkansas Set to Pull the Plug On Second Budgeting App

Says third-party tool isn't working; lawsuit continues against SAP over initial software

BY MARC L. SONGINI

The state of Arkansas is on the verge of unplugging a balky portion of a budgeting application written by a third-party software developer, a move that is connected to ongoing litigation between the state and SAP AG.

The lawsuit, filed in the Circuit Court of Pulaski County, Ark., four years ago, alleges that an initial budgeting application delivered by SAP failed to work as promised and that the state's core IT system based on SAP's R/3 software didn't meet specifications for accessibility by handicapped users.

MORE ONLINE

A spokesman for Arkansas Gov. Mike Huckabee confirmed that a so-called performance-based budgeting tool will be turned off at an as yet undetermined time.

The application was to be part of the state's ERP backbone, known as the Arkansas Administrative Statewide Information System. AASIS went live in July 2001 and is built primarily around R/3. Two state officials agreed that other than the issues outlined in the lawsuit, the AASIS implementation has been successful, despite significant cost overruns.

The state currently puts

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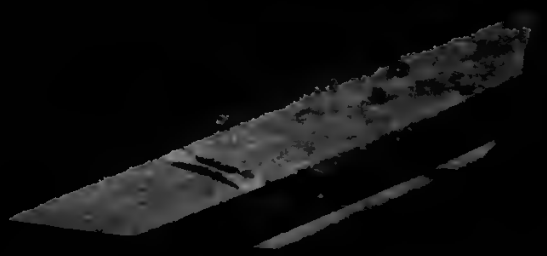

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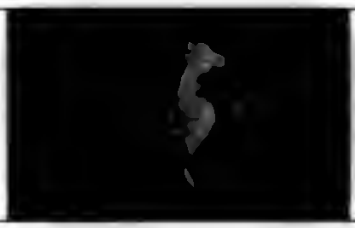

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Also in the Technology section: After a slow start, operations research, with its reliance on complex analytics, is now a key process at Procter & Gamble, says Glenn Wegryn. And it's not just for addressing supply chain questions. **Page 26**

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Sorting Out Web Services Standards

SECURITY DataPower's chief security architect provides a road map for navigating the labyrinth of specs and proposals that make up Web services security. **QuickLink 51462**

Deploying Grid Storage

STORAGE An e-marketing firm's new self-protecting network-attached storage system handles backup, disaster recovery and archiving. **QuickLink 52286**

Eliminate Integration Headaches With SOA

DEVELOPMENT Legacy systems and business complexity can wreck integration projects, but AgilePath's Eric Marks says service-oriented architectures can help solve this problem. **QuickLink 52373**

Can Marketing Build Trust?

E-BUSINESS Consumers respond well to online merchants who successfully balance privacy and personalization, according to a Ponemon Institute survey. **QuickLink 51945**

Apple Touts Tech Upgrades

MACINTOSH Apple Computer has upgraded its PowerBook line, adding faster G4 processors and two new technologies: a "scrolling" TrackPad and a feature called the Sudden Motion Sensor, which is designed to prevent damage if the laptop is dropped. **QuickLink 52293**

What's a QuickLink?

Throughout each issue of Computerworld, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of these codes into the QuickLink box, which is at the top of every page on our site.

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AT DEADLINE

Borland to Unveil Role-based Tools

Borland Software Corp. this week will announce an integrated set of role-based application life-cycle management tools called the Core Software Delivery Platform, or SDP. Code-named Project Themis, SDP includes customized tools for IT analysts, architects, developers and testers. The tool set includes technology from several Borland products.

Microsoft Hires CRM Executive

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Sun to Outsource Internal IT to CSC

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IBM is rolling out a new set of financing options aimed at increasing sales to small and midsize business customers by simplifying the financing process. Dubbed IBM Financing Advantage, the initiative extends several existing programs. IBM said that IT deals worth up to $300,000 can now be approved within an hour.

Linux Kernel to Adopt Server Virtualization

Support for Xen software will be added to kernel; timetable remains uncertain

BY CAROL SLIWA

Support for open source software that provides server virtualization capabilities is due to be added to a future version of the Linux kernel, sources familiar with the technology said last week.

But although Andrew Morton, the maintainer of the Linux 2.6 kernel, confirmed at the OSDL Enterprise Linux Summit here that support for the Xen open-source virtualization software is "going to happen," he wasn't clear about the time frame. Morton said it won't be included in the 2.6.11 version that's due late this month. But, he added, Xen support might be built into one of the two subsequent releases of the kernel that are expected later in the year.

Much will depend on the stability of the code that is submitted to Morton, said a spokesman for Beaverton, Ore.-based Open Source Development Labs Inc., which hosted the summit.

Major contributors to Xen include Hewlett-Packard Co. and Intel Corp., said Ian Pratt, founder of the Xen project and a senior lecturer at the University of Cambridge Computer Laboratory in England, where the 3-year-old open-source project is based.

IBM employees who work at the company's Linux Technology Center have also contributed to the Xen project, an IBM spokesman said.

Like the leading commercial offering from EMC Corp.'s VMware Inc. division, Xen can execute multiple virtual machines, each running its own operating system, on a single server — although the two products work differently from a technical standpoint.

To use Xen today, companies must download either a software patch or a prebuilt operating system kernel that includes the patch from the Xen project's Web site. Thus far, Xen has attracted interest from some hosting companies and "the sophisticated IT department which already is heavily into Linux," Pratt said.

Dan Kusnetzky, an analyst at IDC, views the need for users to install a kernel patch as a major inhibitor to Xen's adoption. Most corporate users get Linux from distributors such as Red Hat Inc. and Novell Inc., and if they patch the kernel, their systems will no longer be supported unless the vendors agree to accept the patch, he said.

Both Red Hat and Novell said last month that they plan to include server virtualization technology in their versions of the operating system and that Xen is a contender [QuickLink 51794].

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Xen is eventually expected to support Windows through virtualization extensions built into Intel's processors. Intel plans to add virtualization support to its Itanium and Pentium chips later this year and to its Xeon processor next year, a company spokesman said. **52398**

Xen 2.1

- Restructured boot code will make the Xen software "thinner."
- Users will be able to balance loads by moving virtual machines between CPUs.

Xen 3.0

- Support will be added for guest operating systems on symmetrical multiprocessors.
- The software will run on x86 systems based on AMD's Opteron chip or Intel's EM64T technology.

Red Hat Users Aren't Racing to Use 2.6 Kernel, CEO Says

Red Hat Inc. CEO **Matthew Szulik** *spoke with* Computerworld *last month. Excerpts from the interview follow:*

Did Novell's acquisition of SUSE Linux early last year cause you to make any changes? It did not alter our approach. Certainly, they're a well-capitalized competitor as a result of the Microsoft settlement [QuickLink 50747]. But we continue to focus on the most important thing about our company – customers.

When is Red Hat Enterprise Linux 4 due, and what are the most critical improvements for corporate users? Mid-February. I don't think there are going to be enterprise customers lined up because they want the latest widget in RHEL 4. It will be reaffirming in the areas of better security; better policy management to make sure that a systems administrator has less complexity to deal with in a very large, distributed environment to distribute security policies; better manageability, of course; the ability of an integrated kernel that will provide better support for ISVs and better throughput; [and] areas around multithreading.

Do you have any concerns that Novell supported the 2.6 kernel first? They did – but you know, our customers are not in that race to be first. When you walk into a Morgan Stanley and an AOL, they want stability. They want manageability. They don't want to have any issues about breaking binary compatibility.

Who do you now view as your greatest competition? The same ones there have always been – the evil-headed twin. It's Sun and Microsoft.

– *Carol Sliwa*

READ MORE ONLINE

An extended version of this interview can be found on our Web site:

QuickLink 52288
www.computerworld.com

AT DEADLINE

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Push for Web-based Health Records Launched

Duke University spearheads a series of pilot tests in the U.S. and Canada

BY HEATHER HAVENSTEIN

A nonprofit foundation that's aiming to bolster consumer adoptioo rates of electronic health records is launching pilot tests of the technology in Canada and the U.S.

The Health Record Network Foundation (HRN), a joint venture of Durham, N.C.-based Duke University's medical and business schools, this month disclosed plans to launch a pilot program with a Toronto-based health system to create a portal where patient health information would be accessible over the Internet.

Under the program, patient records will be stored oo HRN servers. Patient approval would be required to store the records on the server and make them accessible to others. "Unless consumers are actively engaged, even if you build a network, it doesn't mean it will be used," said Brian Baum, HRN's CEO.

The venture is still evaluating content management and database technology to use in the system.

HRN is also finalizing plans for a statewide pilot program in Wyoming and is in discussions with other states.

Most efforts to extend the reach of electronic health records today focus on creating standards that link IT systems in physicians' offices, hospitals and insurance companies. For example, the U.S. Department of Health and Human Services and other organizations are hammering out standards for such a system.

'Health Care Internet'

In contrast, Baum said, HRN plans to build on the pilot projects to form a "health care Internet" where authorized physicians and other users can access the health care history of all patients in the system.

Information that would be stored in the system could include a child's inoculation records, the health care history of an aging parent, prescription data and lab results, Baum said.

In Canada, HRN has teamed up with Sunnybrook and Women's College Health Sciences Centre to test the HRN model with about 100 patients.

The pilot program will add select elements of internal computerized patient records to the HRN portal that may need to be accessed by other health care providers, said Sam Marafioti, vice president and CIO at the Toronto-based teaching hospital.

In Wyoming, a health subcommittee in the state legislature has approved a pilot test with HRN, and the state is now waiting for about $1.75 million needed to fund the effort, said Anne Ladd, executive director of the Wyoming Healthcare Commission. Ladd said the program should be less expensive than other systems.

However, Ladd noted that some physicians and health plans in the state have expressed concerns about the accuracy and completeness of the data that would be stored in the portal.

In addition, the plan doesn't overcome the privacy concerns that have long dogged efforts to build electronic medical records programs.

Sue Blevins, president of the Institute for Health Freedom, a Washington-based health research center, said that if consumers were demanding electronic health records, then everyone would already be equipped with a memory stick with their data stored on it.

"People intuitively understand health care is not like your banking information — the IRS and my boss know how much money I make," she said. "When you combine making it easier to get data with the current weak law, that is a recipe for invasion of privacy." 52397

> **"Unless consumers are actively engaged, even if you build a network, it doesn't mean it will be used."**
>
> **BRIAN BAUM** CEO, HEALTH RECORD NETWORK FOUNDATION

Agent-based App Lets Housing Agency Adapt on the Fly

Improves ability to respond to tenants' changing needs

BY HEATHER HAVENSTEIN

Halfway through its Plan for Transformation, a $1.6 billion effort to refurbish or rebuild 25,000 public housing units, the Chicago Housing Authority (CHA) is dealing with an unexpected wrinkle in its plans to relocate residents during the project.

CHA officials had planned to relocate residents to temporary housing once — on its own a massive logistical undertaking — but they have found that many residents need to move multiple times for unexpected reasons before work on their permanent homes is done.

To tackle this jolt and other fluctuating requirements, such as special needs for seniors and availability of housing units, the CHA has relied on its Tenant Relocation Services Application, a software system that uses agent technology from Agentis Software Inc. in Walnut Creek, Calif., to make real-time adjustments.

Agency officials said earlier this month that the application's return on investment has been far greater than expected.

Agent technology — distributed software components that can realign processes to meet goals without human intervention — is a practical application born from research into artificial intelligence.

When business requirements change for the CHA during the project, the application can be modified incremeotally to manage exception handling without expensive and time-consuming recoding efforts, said Barbara Banks, the agency's CIO. Banks said the agency was able to slash by 50% the budgeted cost of building and making changes to the application.

"This [project requires] a process that has never been done before, and it is constantly changing," Banks said. "We may not necessarily understand all the requirements on the front end. There are not applications on shelves we can grab and use. We needed something that was flexible."

As part of the project, residents can move to a temporary public-housing unit or receive a voucher to live in private housing. If tenants are forced to move from the housing early, the authority is responsible for finding new housing.

The latest version of the system, completed by agency developers in October, has eight modules of business processes to track and adjust to various relocation issues, such as provisioning appliances and providing security deposits and reimbursement for moving expenses, said Banks.

The Agentis AdaptivEnterprise Solution Suite has tools to break down a problem into a series of goals and plans to achieve those goals, said Matt Sweetnam, principal consultant at Agentis.

Thus, the software can adapt to provision appliances for tenants only under specific circumstances. For example, once a moving client's appliances reach a set age, the system can place an order with a vendor and schedule an installation. And the system can change those rules for specific appliances, such as setting a three-year limit on a stove and five years oo a dishwasher.

The suite used by the CHA includes developer tools to build agents by defining the conditions under which tbe plan can execute.

"The real power of agents is they can actually learn. And as they learn, they can self-modify the rules," said Navi Radjou, an analyst at Forrester Research Inc. "It goes well beyond the rigid rules-based systems, which offer you a limited set of alternatives."

Agentis and other vendors, such as VI Agents LLC and Whitestein Technologies AG, are maneuvering to capture the growing demand from high-level executives for more-adaptive enterprises, which can respond to changes in product development, supply chain problems or logistical challenges, Radjou said. 52246

> **"This [project requires] a process that has never been done before, and it is constantly changing."**
>
> **BARBARA BANKS** CIO, CHICAGO HOUSING AUTHORITY

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BRIEFS

Microsoft Launches Research Initiative

Following the European Commission's call for increased technology research, Microsoft Corp. said it's launching an initiative to invest in research centers in Europe. The EuroScience program was unveiled by Microsoft Chairman Bill Gates in Prague. The first research center, at the University of Trento in Italy, will focus on using computational tools for biological research.

Google Reports Sales, Profit Boosts

Google Inc. saw revenue and net income grow significantly in its fourth quarter. The search engine vendor said its ad sales continued to climb both on its own and on partners' Web sites.

	REVENUE	
Q4 04	$1.03B	$204.1M
Q4 03	$512M	$27.3M

CA Names CFO

Computer Associates International Inc. raided Dell Inc. to fill one of its last remaining management vacancies. The company hired former Dell Chief Accounting Officer Robert Davis as its new chief financial officer. Davis fills a spot left open after CA fired former CFO Ira Zar in October 2003 in connection with its investigation of an accounting scheme that resulted in improper recording of $2.2 billion in revenue.

Microsoft Ships New Search Engine

Microsoft's Internet Explorer search engine is ready to take center stage at the MSN.com Web portal. The portal previously used search technology from rival Yahoo Inc. The new MSN Search engine, in beta-test mode since November, lets users search Web sites as well as content from Microsoft's Encarta encyclopedia and MSN Music.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL

MATTHEW PAUL TYLER

Databases Can't Handle RFID . . .

. . . data deluge that will soon rain down on IT. Kathleen Mitchell, CEO of CopperEye Ltd. in Bath, England, says that radio frequency identification technology will arrive everywhere all too soon and that IT will be asked to manage the data that tracks "a product from raw materials to its final configuration." A recent Ford Motor Co. recall of about 750,000 trucks underscores the problem. A small fraction of the recalled trucks have a faulty cruise-control device. Had parts information from Ford's production lines been accessible, the company could have recalled only the trucks affected. "I'm betting Ford had the data in log files, but it was too expensive to keep it, so it was tossed out," says Richard Cramer, CopperEye's vice president of marketing and business development. He and Mitchell contend that the situation will only get worse with RFID, which will balloon the amount of data that's generated and make indexing the information in a relational database prohibitively expensive and all but impossible. Mitchell estimates that if Wal-Mart Stores Inc. logged all of its inventory via RFID tags for a single day, it would reach 7 million terabytes of data. Gulp! Can your database swallow that? Didn't think so. So, what can you do when RFID data management hits your inbox? Consider CopperEye's yet-to-be-announced Project Greenwich software. Due in Q2, Greenwich indexes the flat files, or data logs, that will be fed RFID information. According to Cramer, the technology can easily index petabytes of data. "Most of the data you'll never need," he says. "But when you need it, you need it right now." Just ask Ford.

Start providing endpoint security . . .

. . . with a new service from Check Point Software Technologies Ltd. in Redwood City, Calif. The Program Advisor service, which is being launched today as a component of Check Point's Integrity 6.0 software upgrade, provides a database of trusted applications that can be queried in real time wheo a computer launches a program for the first time. If the application is listed in the database, you'll know that it's not malware. Rich Weiss, director of endpoint product marketing at Check Point, doesn't pretend that the current list of 85,000 applications covers the entire universe of commercial software. But Program Advisor will relieve security administrators of having to determine whether a heretofore unknown application oo a network is a potential threat. In addition to the new service, Integrity 6.0 now runs in Linux and Windows clusters, automatically screens executable code for malware and improves reporting to Check Point's SmartCenter management console. Pricing hadn't been finalized as of our publication deadline. SmartCenter itself will be upgraded next month with a real-time data-correlation engine that can process log data from a variety of security devices at the rate of 20,000 log events per second, Check Point said.

150 Versions of Internet Explorer in Check Point's Program Advisor database

Appliance controls network access . . .

. . . by screening both the device and the user. Later this month, Vernier Networks Inc. in Mountain View, Calif., will ship its EdgeWall 7000 appliance, which screens each computer logging onto a corporate network for security vulnerabilities, such as whether systems are up to date on software patches. The device also correlates user access rights with a centralized Lightweight Directory Access Protocol directory, says Bethany Meyer, vice president of marketing at Vernier. The EdgeWall 7000 automatically enforces security policies by quarantining vulnerable devices until their deficiencies have been remediated. Each appliance can handle up to 1,000 end users and costs $9,000. "Consider it a firewall for your LAN," Meyer says.

Collaborative online Wiki world . . .

. . . to get tools that appeal to IT. A Wiki is an open-source collaboratioo environment that lets anyone post informatioo on a Web site. However, most Wikis have primitive information-management tools. Palo Alto, Calif.-based start-up JotSpot Inc. intends to remedy the situation with an eponymous hosted service that's due to be launched by midyear. JotSpot will offer a WSYWIG Wiki editor, revision-control capabilities, page-access rights and other features. JotSpot adds the concept of a form to Wikis so their authors can create pages that, for example, include dates for tracking information. "Most Wikis don't know what a date or number is," says JotSpot CEO Joe Kraus. "A Wiki just sees text as a string." JotSpot's technology also lets users attach any kind of file to a Wiki page and then indexes the text for search purposes, even within word-processing documents that are attached to the page. According to Kraus, JotSpot will likely cost $3 per user per month. ⓒ 82367

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Experts Warn That Some CAS Arrays Are at Risk

Point to security flaw in MD5 hashing algorithm used for digital signatures

BY LUCAS MEARIAN

SECURITY EXPERTS are warning against the use of a flawed hashing algorithm, MD5, for digital signatures to store data securely on increasingly popular content addressed storage (CAS) systems.

For instance, an official at the National Institute of Standards and Technology last week said IT managers have good reason to be concerned about security flaws in MS. "It's pretty well known right now that it's just not up to what you need," said Elaine Barker, head of NIST's computer security division.

Barker said NIST has no plans to certify or recommend the MD5 algorithm for government use.

The warnings come as more vendors unveil CAS systems to meet the need for disk-based backup of fixed data such as e-mail and medical images. Experts say that under specific circumstances, hackers could create files containing malicious data that could cause data loss or the dissemination of bad data.

Of the four major vendors of CAS storage, two of them — EMC Corp. and Archivas Inc. in Waltham, Mass. — use the MD5 algorithm. The other two, Permabit Inc. in Cambridge, Mass., and Avamar Technologies Inc. in Irvine, Calif., do not. Archivas said it provides the option of using another method of indexing, called the Secure Hash Algorithm-1.

Users of EMC and Archivas systems say they aren't concerned about the warnings.

"I believe that the possibility of a [problem] is so unlikely that it does not bother me," said John Halamka, CIO at Boston-based CareGroup Inc., a hospital management company. "Thus far, we've been working with [the] Centera [array] for more than a year without a single issue."

Curt Tilmes, a systems engineer at NASA's Goddard Space Flight Center in Greenbelt, Md., has been beta-testing an Archivas Cluster CAS system for archiving satellite data about the earth's atmosphere for more than a year.

He said he feels it's secure because it's on a private network with firewalls. "I suppose it wouldn't burt [to use a more secure algorithm], but for my application, it wouldn't have an effect," Tilmes said.

Seeking Alternatives

Meanwhile, Sun Microsystems Inc.'s long-awaited CAS system, code-named Honeycomb, won't use the the MD5 algorithm because of security concerns, said Chris Woods, chief technology officer for Sun's storage practice. Woods would not say which algorithm the company will use to index stored objects.

Just over a week ago, StorageTechnology Corp. anoounced plans to resell CAS technology from Permabit for an e-mail archival system. StorageTek shied away from systems using MD5 because of questions about whether it is compliant with U.S. Securities and Exchange Commissioo regulations, according to Harvey Andruss, product marketing manager for StorageTek's Lifecycle Fixed Content Manager.

An SEC spokesman would not say whether his agency is currently investigating possible security flaws in MD5.

"It really is time for [the industry] to stop using MD5," said Dan Kaminsky, a security consultant at Avaya Inc. in Basking Ridge, N.J. "MD5 has been a deprecated hashing algorithm for almost a decade. The industry has clung to the algorithm, partially out of inertia, partially out of scarcity of computer power."

In a report last month, Kaminsky pointed out that an attack could be used to create two files with the same MD5 hash, one with "safe" data and one with "malicious" data. If both files were saved to the same system, a so-called collisioo could result, leading to data loss or the dissemination of bad data, he said.

Mike Kilian, CTO at EMC's Centera division, cootended that MD5 flaws don't apply to Centera arrays because once a piece of content is stored, a company can't change it.

"Centera from almost Day 1 has had multiple addressing schemes available to applications," Kilian said.

Kaminsky disagreed. "Cryptography tends to be a 'garbage algorithm in, garbage security out' discipline," he said. "Let's say they were appending custom metadata to the end of their files. Conceivably, the attack would oot care, as once two files have the same hash, you can append the same [identical] metadata to both of them and they'll still possess the same hash."

Archivas officials noted that its CAS device does not use the MD5 hash key to name the file in the archive, the way EMC's product does. 52386

So, What Is CAS?

CAS SYSTEMS store metadata and data along with management policies to create an object that is quickly retrievable, no matter where it's stored on a disk subsystem. CAS uses WORM (write once, read many) capabilities to ensure that once data is stored, it can't be overwritten, which satisfies several regulatory requirements.

As VoIP Matures, Payback Remains an Issue for Users

BY MATT HAMBLEN

Voice-over-IP technology will again be the major focus of this week's VoiceCon conference, with an emphasis on finding VoIP applications that are beneficial to business users.

Network managers who were waiting to see if VoIP was mature enough have discovered that it is, said Fred Knight, general manager of VoiceCon 2005, which is taking place this week in Orlando. "So the next question is, What can I do with this technology to help businesses work?"

Showing companies where to look for a return on their investments in IP telephony is really at the core of VoiceCon's agenda, Knight added. About 4,000 attendees, 60% of them users, are expected at the conference, which is sponsored by MediaLive International Inc.

Craig Hinkley, senior vice president of network architecture at Bank of America Corp. in Charlotte, N.C., said VoIP is "pretty much a foregone conclusion" for next-generation corporate networks. "The discussion used to be 'if VoIP,' and it is now 'when,' " he said.

Hinkley will deliver a keynote address at VoiceCon describing Bank of America's planned VoIP implementation, which is designed to put 180,000 users on IP phones from Cisco Systems Inc. over the next three years. Up to 50,000 users should come online this year, Hinkley said.

About 35 pilot projects involving 1,000 users are already under way, he said. Much of the VoIP work is being coordinated by Electronic Data Systems Corp., which Bank of America hired in late 2002 to manage its networks under a 10-year, $4.5 billion contract.

In his keynote, Hinkley will offer advice aimed at helping other IT managers navigate through the minefield of bringing voice and data teams together to build VoIP systems. "The first thing that happens when you mention you're doing VoIP is that the room splits and the voice and data guys set up castles and start lobbing grenades," he said.

> **"The discussion used to be 'if VoIP,' and it is now 'when.'"**
>
> CRAIG HINKLEY, SENIOR VICE PRESIDENT OF NETWORK ARCHITECTURE, BANK OF AMERICA CORP.

Hinkley has broken Bank of America's VoIP project into separate infrastructure and applicatioo services components. The latter is "where a lot of innovation and the value of VoIP is driven from," he said. But he declined to detail the VoIP applications that are being discussed at the bank or the cost of the rollout.

The security of VoIP systems could be a major topic of discussion at VoiceCon following last month's release of a report by the National Institute of Standards and Technology that warned users to he careful about deploying the technology [QuickLink 52209]. But Knight and others said that VoIP security was a much bigger issue two years ago and that many vendors have more-secure approaches now. 52380

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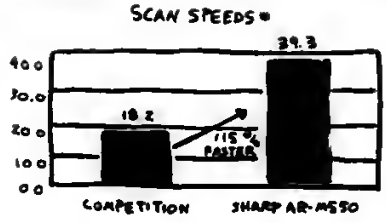

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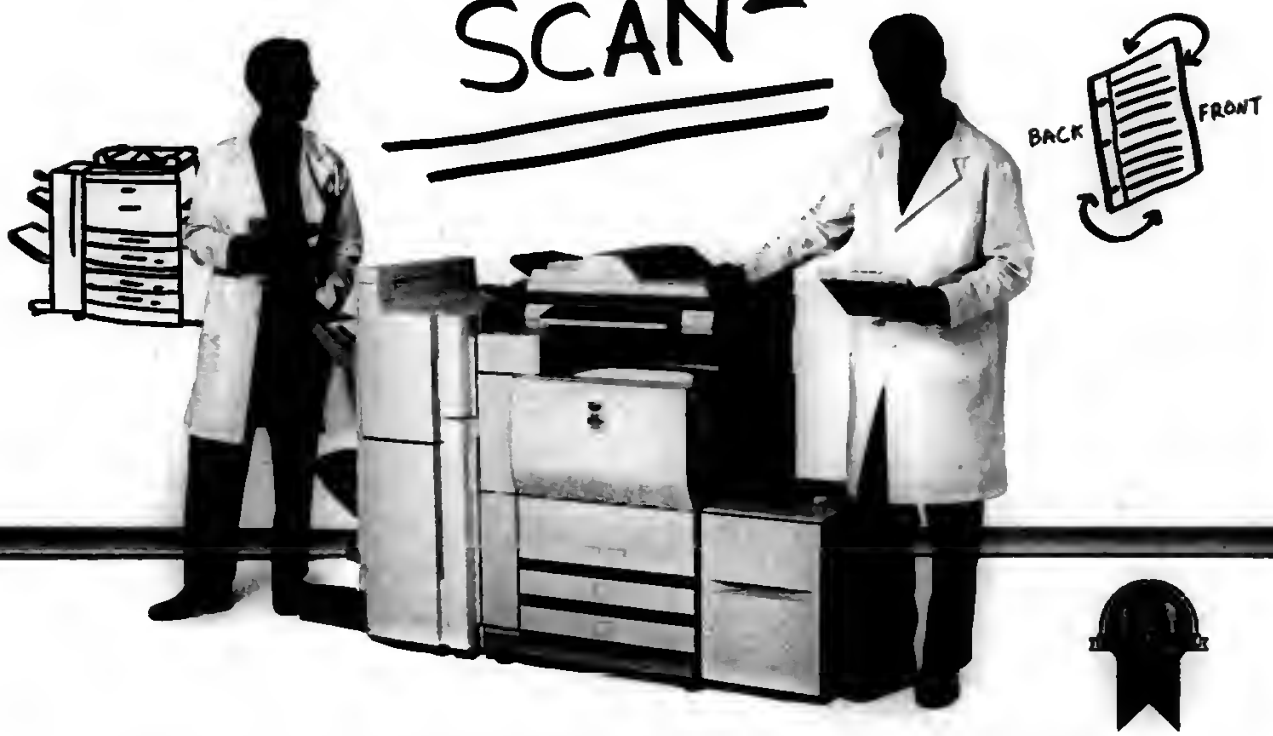

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BRIEFS

Keane Wins $14M Federal IT Deal

Keane Inc. has been awarded a new five-year, $14 million services contract by Pension Benefit Guaranty Corp. The contract extends Keane's 10-year partnership with the federal agency. Under the agreement, the Boston-based consulting firm will provide a range of quality assurance services to manage the PBGC Integration and Testing Center and deliver verification and validation.

AOL Set to Ship New Browser

America Online Inc. next week plans to release the first public test version of a new Netscape browser that's designed to protect users from scams and malicious code while surfing the Web. The Firefox-based browser targets Microsoft Corp.'s Internet Explorer, the subject of many security vulnerabilities, while taking advantage of the popularity of Firefox.

BT Group Extends Accenture Pact

BT Group PLC extended its human resources outsourcing deal with Accenture Ltd. by 10 years under a new $576 million contract. The deal, which will begin in August, will cover HR and related IT functions for all of BT's 97,000 employees and 190,000 pensioners. The previous five-year contract covered only employees in the U.K.

IBM Buys Financial Outsourcer Equitant

IBM has agreed to acquire privately held Equitant, a Dublin-based financial IT outsourcing firm. Financial terms of the deal, which is expected to close in 30 days, weren't disclosed. IBM said the move is aimed at strengthening its financial and administrative transformation services. All 200 Equitant employees will move over to IBM.

Feds Look to Finalize IT Security Controls

NIST issues last draft of new requirements

BY JAIKUMAR VIJAYAN

THE NATIONAL Institute of Standards and Technology (NIST) has released the final draft of a set of recommended security controls for federal information systems.

The controls are likely to become a mandatory and nonwaivable Federal Information Processing Standard by the end of this year for all federal systems except those related to national security.

Some analysts predicted that the mandatory controls will cause problems for agencies, especially smaller ones.

"It's OK to specify certain objectives. But it becomes hard if things are mandated down to the specific controls," said Michael Rasmussen, an analyst at Forrester Research Inc. "You can't apply a one-size-fits-all set of controls."

The third and final version of NIST's Special Publication 800-53 document incorporates several recommendations from people who commented on previously published versions, said Roo Ross, project leader of NIST's Federal Informatioo Security Management Act (FISMA) Implementation Project.

Passed in 2002, FISMA is the primary legislation covering the security of federal information systems.

Draft Changes

According to Ross, major changes in the final draft include a reduction in the oumber of security controls for low-impact systems, a new set of application-level controls and greater discretionary powers for organizations to downgrade controls.

Also included in the final draft is language that allows federal agencies to keep their existing security measures if they can demonstrate that the level of security is equivalent to the standards being proposed by NIST.

Following a two-week public comment period, a final version of SP 800-53 is expected to be approved by the U.S. Commerce Department by the end this month, Ross said.

Around June, NIST will publish a guide that federal agencies can use to assess the security measures they have put in place, Ross added. "It will allow them to see if the controls they have implemented are producing the desired results," he said.

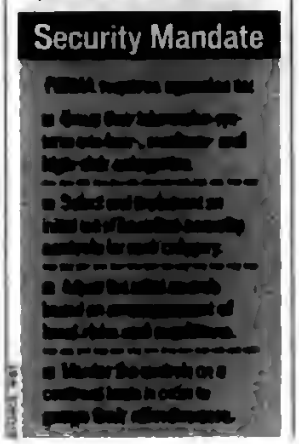
Adopting standards such as those proposed by NIST is crucial to the security of federal systems and to overall Internet security, said Larry Clinton, chief operating officer at the Internet Security Alliance (ISA) in Arlington, Va. But mandating compliance, even in the public sector, is a bad idea, he said.

ISA is a collaboration between the CERT Coordination Center at Carnegie Mellon University and the Electronic Industries Alliance, a federation of trade associations.

"The problem we're trying to solve changes far too quickly," Clinton said. "A traditional regulatory process just can't keep pace."

Except when dealing with classified information, there's little reason to apply mandatory controls to federal systems, added Will Ozier, president of OPA Inc., a Vacaville, Calif.-based risk management consultancy. Controls should be applied based on "a quantitative risk assessment that anticipates the prospective loss" resulting from a cyberattack, Ozier said. 52395

Security Mandate



Hosted Apps Seek to Drive Auto Industry Collaboration

BY JAIKUMAR VIJAYAN

AutoWeb Communications Inc. this week plans to announce a hosted service that's designed to let companies in the auto industry more efficiently share product, project management and 3-D engineering data via the Internet.

The real-time collaboratioo service is based on product life-cycle management (PLM) software from Plano, Texas-based UGS Corp. and is being positioned as a lower-cost and less-complex alternative to implementing similar capabilities in-house.

The UGS software will allow companies to collaborate with one another using their own project management and computer-aided design and engineering tools, said Nino DiCosmo, CEO of Rochester Hills, Mich.-based AutoWeb.

The new service addresses "a definite need," especially for small and midsize companies, said Doug Halliday, director of engineering systems and data management at General Motors Corp.

"The ability to share product design information, fast and effectively, all over the planet as required is becoming key," Halliday said, noting that automakers such as GM and their major suppliers are moving to global development and product sourcing models.

GM is tying together its global development centers, joint-venture partners and large suppliers into a collaborative environment, Halliday said. The Teamcenter technology developed by UGS is playing a key role in that initiative.

Services such as those being offered by AutoWeb will help suppliers integrate systems more tightly with their own business partners, and with those of the manufacturing companies they supply to, Halliday said.

Reaching Out

AZ Automotive Corp. in Center Line, Mich., is one example of a company making such a change. AZ plans to sign up for AutoWeb's service in a bid to enable real-time product collaboration, initially among its nine North American plants and eventually with its 100 or so suppliers worldwide, said Mark Henkelmann, the company's IT director.

"Being in a cost-reduction mode, we don't have a whole lot of capital to spend on software," he said. "AutoWeb gives us the ability to outsource the collaboration piece."

A key feature of Teamcenter is its support for the 3D JT data format, which supports data sharing among different systems, said Chuck Grindstaff, executive vice president of product development at UGS.

AutoWeb is trying to tap into a growing interest in hosted PLM services, said Ken Amann, an analyst at CIMdata Inc. in Ann Arbor, Mich. The trend is prompting other business-to-business hubs, such as Exostar and Eurostep, to roll out similar offerings, he added. 52396

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GLOBAL DISPATCHES

An International IT News Digest

Study: China No Threat To India's Outsourcers

CHINA'S BOOMING ECONOMY and low wages have prompted speculation that it will soon be a strong competitor to India for IT outsourcing business. But a McKinsey & Co. study released last month concluded that it will be many years before China's software outsourcing industry is a threat to India's IT services juggernaut.

For starters, China's software services companies must consolidate their highly fragmented industry so they can gain the size and expertise needed to capture large international projects, consultants at New York-based McKinsey said.

Smaller companies are viewed as riskier partners that are vulnerable to the loss of key personnel and "may not have the financial muscle to survive for the duration of a project," the authors said. Yet, they added, the Chinese companies interviewed for the study showed little interest in mergers and acquisitions.

The study also found that only six of China's 30 largest software development companies are certified at Levels 4 or 5 of the Software Engineering Institute's Capability Maturity Model. In contrast, all of the top 30 Indian software companies have achieved those rankings.

German Retailer Reports 99% RFID Read Rate

DUSSELDORF, GERMANY BASED Metro AG, the world's third-largest retailer, reported Jan. 28 that it has successfully implemented radio frequency identification technology at its largest and busiest distribution center in Germany.

Metro has processed more than 50,000 shipping pallets equipped with RFID tags and is achieving 99% tag read rates, said Gerd Wolfram, the executive project manager, in a prepared statement. The distribution center in Unna, Germany, uses RFID readers and tags from Intermec Technologies Corp. in Everett, Wash.

GLOBAL FACT

Profit increase reported by Indian IT outsourcing firm Wipro Ltd. in the quarter that ended Dec. 31, compared with the same period a year earlier.

Germany and the U.K. are the leading growth markets for RFID in Western Europe, where widespread adoption is expected in 2006 and 2007 after technical issues have been resolved and pilot projects have been completed, according to Juniper Research Ltd. in Hampshire, England. Juniper said it expects RFID to be a $1 billion market in Western Europe by 2007.

Tokyo Court Orders Word Rival Off Market

TOKYO

A TOKYO DISTRICT COURT judge last week ordered a halt to the production and sale of a popular word-processing program that is the only serious competitor in Japan to Microsoft Word. The court also called for existing stocks of the program, called Ichitaro, to be destroyed on the grounds that its Help Mode function infringes on a patent held by Matsushita Electric Industrial Co.

Justsystem Corp., the Tokushima, Japan-based vendor of Ichitaro, said it plans to appeal to a higher court. The company can continue selling the product until the higher court rules. Osaka, Japan-based Matsushita said it obtained a patent on the help function in 1998. **52347**

■ PAUL KALLENDER, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

, chairman and CEO of Microsoft Corp.'s French subsidiary, has resigned to become CEO of Altran Technologies SA, the IT services and consulting firm said last week. Paris-based Altran, which has 16,000 workers in 17 countries, posted losses in 2002 and 2003; it has yet to report last year's results. Aulnette had been chief of Microsoft France, which has 920 employees, since 2001.

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IT Role in Sarb-Ox Problems Is Unclear

Users find multiple compliance hurdles

BY THOMAS HOFFMAN

Audit and compliance experts last week offered mixed views as to how frequently IT-related deficiencies are a significant issue for those companies having problems meeting the requirements of the Sarbanes-Oxley Act of 2002.

Under Section 404 of Sarbanes-Oxley, publicly held companies are required to attest to their internal financial controls. Expert estimates range from a low of 5% to between 20% and 25% of the 4,000 companies filing reports this year will reveal "material weaknesses" in their financial controls.

Moreover, some experts predict that more than 200 publicly held companies will disclose material weaknesses this year because of IT-related control deficiencies, such as security gaps and segregation among applications.

Todd Naughton, vice president and controller at Zebra Technologies Corp., said the toughest part of his company's internal controls assessment was in its IT operations. That's largely because of the amount of testing needed.

The Vernon Hill, Ill.-based supplier of printer components doesn't expect to report any material weaknesses with its financial controls when it completes its assessment this week, Naughton said.

Meanwhile, officials at SunTrust Banks Inc., Eastman Kodak Co., Financial Institutions Inc. and Ceridian Corp. each said the material weaknesses they have disclosed in financial controls weren't related to IT.

Many clients of Meta Group Inc. "were keeping their fingers crossed that the auditors weren't going to dig as deep in Year 1 around all of the IT areas," said John Van Decker, an analyst at the research firm in Stamford, Conn.

Van Decker expects that up to 25% of accelerated filers — companies with a market capitalization greater than $75 million whose fiscal year ended after Nov. 15 — will report material weaknesses to their internal controls. The cause for 30% to 40% of those companies will be IT or application-control deficiencies.

Van Decker and other experts predicted that problems will be more common among small-to-midsize businesses — those with $75 million to $900 million in revenues — whose IT staffs are stretched too thin to effectively deal with compliance requirements.

According to "Compliance Week," a Newton, Mass.-based weekly newsletter on corporate governance and compliance, only 3.5% of the 582 companies that made material weakness and "significant deficiency" disclosures in 2004 specifically mentioned IT controls.

IT System Snags

Of the 582 "material weakness" and "significant deficiency" disclosures made in 2004, just 3.5% specifically mentioned IT controls, according to "Compliance Week," a weekly newsletter on corporate governance and compliance.

However, those figures may be deceiving because the largest number of deficiency and weakness disclosures made in 2004 were related to financial systems and procedures, said "Compliance Week" Editor and Publisher Scott Cohen. "Companies don't always disclose granular details about such weaknesses, so it's possible that many did include problems with IT systems and controls," he said.

Marios Damianides, a partner in the technology and security risk services group at Ernst & Young LLP in New York, expects that just 5% of accelerated filers will report material weaknesses in their internal controls. Within that subset, just one out of five companies will report IT-related deficiencies, predicted Damianides. **52382**

GLOBAL

An International IT News Digest

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The Vernon Hill, Ill.-based supplier of printer components doesn't expect to report any material weaknesses with its financial controls when it completes its assessment this week, Naughton said.

Meanwhile, officials at SunTrust Banks Inc., Eastman Kodak Co., Financial Institutions Inc. and Ceridian Corp. each said the material weaknesses they have disclosed in financial controls weren't related to IT.

Many clients of Meta Group Inc. "were keeping their fingers crossed that the auditors weren't going to dig as deep in Year 1 around all of the IT areas," said John Van Decker, an analyst at the research firm in Stamford, Conn.

Van Decker expects that up to 25% of accelerated filers — companies with a market capitalization greater than $75 million whose fiscal year ended after Nov. 15 — will report material weaknesses to their internal controls. The cause for 30% to 40% of those companies will be IT or application-control deficiencies.

Van Decker and other experts predicted that problems will be more common among small-to-midsize businesses — those with $75 million to $900 million in revenues — whose IT staffs are stretched too thin to effectively deal with compliance requirements.

According to "Compliance Week," a Newton, Mass.-based weekly newsletter on corporate governance and compliance, only 3.5% of the 582 companies that made material weakness and "significant deficiency" disclosures in 2004 specifically mentioned IT controls.

IT System Snags

However, those figures may be deceiving because the largest number of deficiency and weakness disclosures made in 2004 were related to financial systems and procedures, said "Compliance Week" Editor and Publisher Scott Cohen. "Companies don't always disclose granular details about such weaknesses, so it's possible that many did include problems with IT systems and controls," he said.

Marios Damianides, a partner in the technology and security risk services group at Ernst & Young LLP in New York, expects that just 5% of accelerated filers will report material weaknesses in their internal controls. Within that subset, just one out of five companies will report IT-related deficiencies, predicted Damianides. 52382

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[1]The comparison presented above is based on the IBM eServer xSeries 365 (4x 3.0GHz Intel Xeon MP) result of 2616 conforming connections and Sun Fire V40z server (4x AMD Opteron 850) result of 4600 conforming connections on SPECweb99_SSL benchmark, as of 12/08/04. SPEC and the benchmark name SPECweb99_SSL are registered trademarks of the Standard Performance Evaluation Corporation. For the latest SPECweb99_SSL benchmark results, visit www.spec.org.
[2]Source: DH Brown Pricing Configurator dated 11/3/04. 4x 3.0GHz/8GB memory using 1GB DIMMs/2x 73GB (10K) disks/DVD/2 redundant power supplies/OS.

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Continued from page 1

Arkansas

the cost of AASIS at $60 million, twice the estimated budget at the project's start. It contracted with SAP for the system in February 2000.

After the initial installation of SAP's budgeting system failed, the state spent $2 million on software from Protech Solutions Inc. in Little Rock, Ark., according to officials. A source within the government said that the state will retire the performance-based component developed by Protech while keeping its basic budgeting application.

SAP insists that AASIS is a success overall and claims that the system has the support of the governor. "We delivered a tool for budgeting for the state, and they chose not to use it early on," said William Wohl, a spokesman for SAP America Inc. As for the litigation, he added, "the position the state took is not SAP's."

Arkansas Attorney General Mike Beebe, who is representing the state in its lawsuit against SAP, said the technology behind the performance-based budgeting software in AASIS was originally designed to provide individual agencies with more budgeting freedom while ensuring that they hit operational targets.

"The business model of budgeting traditionally uses line items," said Beebe. "This grants more flexibility to agencies but has a risk and rewards system [that's] dependent on meeting goals and mission compliance."

The most recent version of the lawsuit, filed last February, states that "SAP's first attempt to deliver a budgeting system within AASIS as required by the contract wasn't complete when SAP unilaterally changed course. SAP's second attempt to provide a budget system 'outside' the integrated system on a business warehouse platform also failed."

Other Woes

In addition, because AASIS didn't comply with handicap-accessibility requirements, a court shut down some nonessential portions of the system last July, Beebe said.

At times in the past several years, he said, some legislators have discussed unplugging the entire system, though that rhetoric has died down lately.

"We could end up with another vendor if they can't provide the software to our satisfaction," Beebe speculated. "My personal opinion is that AASIS should provide what was contracted for."

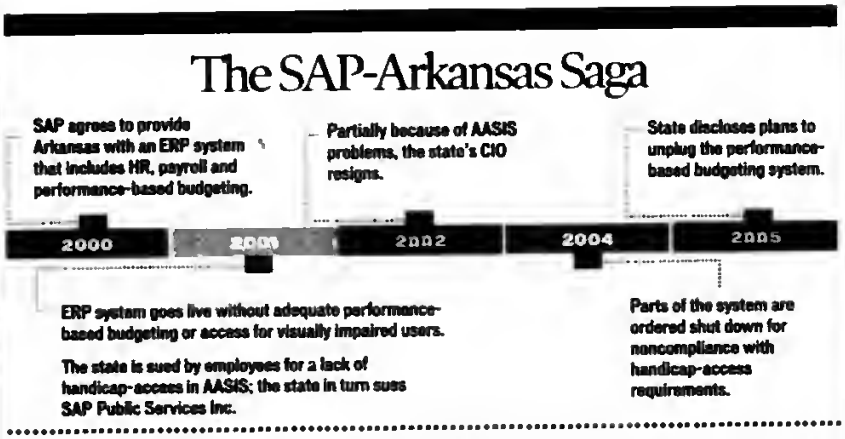
He added that if SAP can't fix the budgeting application and meet the handicap-accessibility requirements, "they should pay the amount necessary for another vendor."

Beebe said the state is still preparing for a trial in its lawsuit against SAP. No trial date has yet been set, he added.

The governor's spokesman declined to disclose the amount of damages that the state is seeking from SAP.

Beebe noted that in general, SAP blames the problems on a lack of adequate training and resources from the state, while Arkansas blames the performance of the software. **52392**

The SAP-Arkansas Saga



Continued from page 1

Sun

the unused CPU hours on the exchange.

Trading won't begin for another three to six months, a Sun official said, adding that the company may also offer CPU cycles on the exchange.

Sun said it is in a "proof of concept" phase on Sun Grid with some users and has about 10,000 CPUs available at multiple data centers. The base price for CPU time is $1 per hour, and Sun is also offering storage at a monthly cost of $1 per gigabyte. But volume users will likely pay a lower rate, the company said.

Subscription Interest

One user who plans to evaluate the Sun Grid model is Joe Euteneur, chief financial officer at XM Satellite Radio Holdings Inc. in Washington. XM last week said it has made Sun the sole Unix server and storage supplier for its back-office data center, which supports business operations, marketing and customer service. The company's broadcast operations use a variety of vendors, including Sun.

"They clearly have my interest," Euteneur said. "The computer industry is trying to move toward a subscription-based business, and obviously we are a subscription-based business."

He added that he sees potential cost advantages to using Sun Grid, but it depends on the service delivery and the actual pricing that XM could get from Sun.

Sun expects the early adopters of Sun Grid to be high-performance computing users in industries such as financial services, oil and gas exploration, and the life sciences.

Jonathan Schwartz, Sun's president and chief operating officer, said at the company's quarterly product rollout in Santa Clara, Calif., that large software development organizations also may find Sun Grid appealing.

The new approach "will offer standardized software infrastructure in a grid that all their developers can get access to worldwide, without that business having to maintain and operate the infrastructure," Schwartz said.

Other vendors, such as IBM, already offer pay-per-use utility computing. But Sun's fixed price and its marketplace approach illustrate the increasing commoditization of IT, said Nicholas Carr, author of *Does IT Matter? Information Technology and the Corrosion of Competitive Advantage* (Harvard Business School Press, 2004).

Carr said that upward of 90% of a company's IT spending goes to basic infrastructure. "That's a large percent of expenditures that, in fact, can move to a utility model," he said. "I think [Sun Chairman and CEO] Scott McNealy has seen the future. The question now is, Have Scott McNealy's customers seen the future?"

Christopher Willard, an analyst at Framingham, Mass.-based IDC, said the technical users that Sun sees as likely Sun Grid customers have "an insatiable appetite" for compute cycles. But they will have to be convinced that security is tight and that data can be processed swiftly on the grid, he said. **52393**

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CEO Says SAP Is Ready for New Oracle

BY JOHN BLAU

SAP AG plans by 2007 to roll out a new application platform based on its NetWeaver integration technology. The Business Process Platform will lead to an "industrialization of the software industry," contends CEO **Henning Kagermann,** *who recently discussed the company's plans.*

NetWeaver was introduced two years ago. How would you describe it? NetWeaver is an integration platform. We have integrated many technical tools into it so that customers can integrate legacy systems with SAP technology more easily. The idea is to give people on the outside access to functions inside our technology.

You're still rolling out NetWeaver, but you're already talking about the Business Process Platform. Why? We could stop with NetWeaver, but if customers want to adapt more quickly to new business models and be more innovative with their use of business software, they also need to be able to build new services faster and with greater flexibility. We want to create reusable processes at the application level and combine these with NetWeaver.

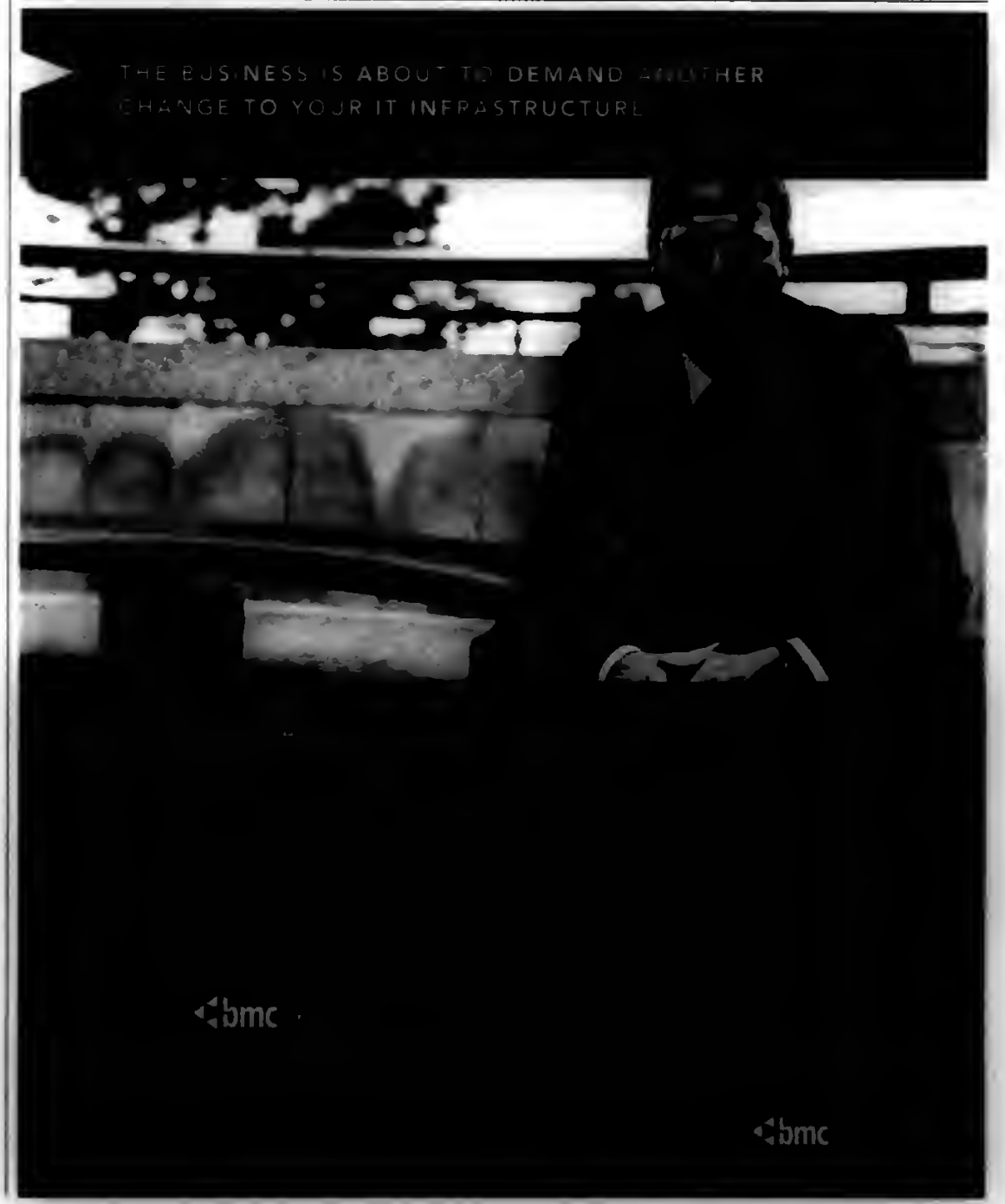
Will the new system be based on an open architecture? Definitely. We let customers decide in which language they want to develop add-ons. The discussion about whether it has to be Java or our own ABAP [programming language] is stupid.

When will Business Process Platform ship? In 2006, we will provide ISVs with broad access to the platform so they can develop software applications on top of it. We aim to move our complete portfolio to the [system] by 2007.

Will the new platform help differentiate SAP from Oracle? We believe so. We've been saying all along that the underlying technology, such as database systems, is a commodity and that it makes no sense to integrate our software in this layer. We want to give customers the freedom to choose. Oracle still believes everything revolves around data. We say everything revolves around processes.

What about price pressure, especially in the wake of the Oracle/PeopleSoft deal? I'm not sure what will happen. We could see stable prices, but this depends on how determined Oracle is to gain market share. **52351**

Blau reports for the IDG News Service.



DON TENNANT

The Three Stooges

WHEN I HEARD last week that three U.S. congressmen were raising the alarm that the planned sale of IBM's PC business to China's Lenovo Group could threaten our national security, all I could do was shake my head in disgust and think, "Here we go again."

In case you haven't heard, the three congressmen — the chairmen of the House International Relations, Armed Services and Small Business committees — are fretting that advanced technology could be transferred to the Chinese government, and they want to roll out some bureaucratic red tape to slow down the government's review of the deal [QuickLink 52217]. The hand-wringing bespeaks a level of ignorance that has been pervasive in the U.S. Congress and media for years.

I lived in Hong Kong in the '90s, and I was there when the territory reverted to Chinese sovereignty on July 1, 1997. I was among the many American expats there who were mortified by the cries of hysteria that were coming out of Congress — and by the way the event was covered in the U.S. media. I remember watching Dan Rather in that absurd flak jacket, reporting at midnight from the Hong Kong-China border. The backdrop was a convoy of trucks full of People's Liberation Army soldiers rumbling ominously into Hong Kong.

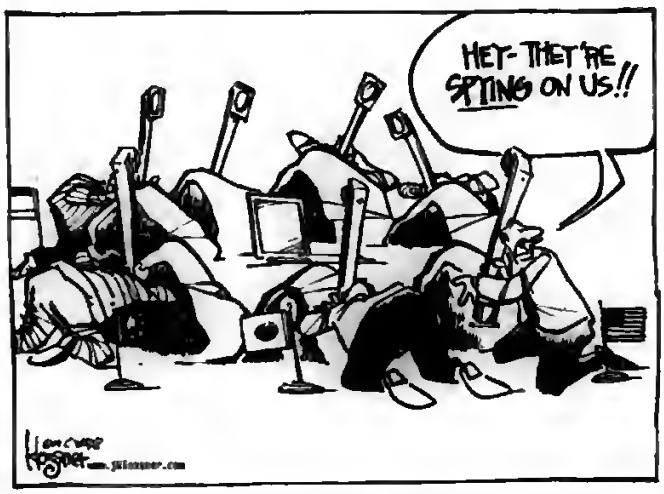
You would have thought Hong Kong was under siege. Never mind that any country that gains sovereignty over a territory is responsible for defending the citizens of that territory, and that China was obligated to be prepared to do that immediately. Never mind that I never once — not *once* — saw a PLA soldier during the two and a half years that I continued to live in Hong Kong after the transfer. Never mind that the transfer was so transparent that the only perceptible change was the appearance of Chinese flags where the British flags used to be.

Now we have Congressmen Larry, Moe and Curly running around making the same ill-informed, alarmist arguments that the opponents of Most Favored Nation trading status for China made in the '90s. And they appear to have an equally ill-informed, receptive audience. *The New York Times*, citing unnamed sources, reported that members of the Committee on Foreign Investments in the United States — the multiagency body reviewing the Lenovo deal — are concerned that things like battery technology could be used to advance China's military capabilities. I'm not making that up.

The underlying problem, you see, is that China engages in industrial espionage against the U.S. Good grief. Don't tell anybody, but so do Japan, South Korea, France, Germany and just about all of our allies and largest trading partners. And . . . shhhhhh . . . we do it to them, too. Apparently that's news in some circles in Washington. And we're afraid about our R&D work being transferred to Beijing? Please. Many U.S. high-tech companies have long-standing R&D operations in China, IBM and Microsoft being among the largest. I've been to the facilities of both, and to some others. They're impressive, and they play an integral part in advancing the technologies that benefit people around the globe every day. That's the world we live in.

We're not living in a black-and-white world of 1930s isolationism. The Three Stooges are poking our third-largest trading partner in the eye, and it's inexcusable. If we put anything under review in Washington, let's make it legislative buffooonery. We'd all be better off. **52310**

Don Tennant



MICHAEL H. HUGOS

The View From Jo'burg

LAST FALL, I made my way from Chicago to Frankfurt and then on to Johannesburg, South Africa, to speak at an IT conference. I experienced firsthand how information and communication technology (or ICT, as the Europeans and Africans say) is changing the world and driving the global economy [QuickLink 51329]. My trip to Jo'burg (as the locals call it) was a real eye-opener for me.

In the past five years, the global information infrastructure has become a reality. It's odd, because we nearly talked ourselves to death about all this during the boom years of the '90s, and when the bubble burst, we didn't want to hear about it anymore. But it happened anyway. Some of the wildest stock prospectus claims from the late '90s are now a reality or an imminent possibility. This is happening all over the world, not just in North America.

The theme of the three-day conference was "Getting the Most Out of Your IT Department." Topics included best practices for data security, measuring total cost of IT ownership and business growth strategies. My simple Chicago ears were challenged to understand English spoken with so many different accents — Indian, Afrikaner, Zulu, British. But I quickly realized that the presentations were every bit as substantive and advanced as anything I've heard in the States.

What was I expecting? Well, perhaps I was a bit of a Yankee IT elitist when I arrived, but that attitude was corrected in the face of overwhelming evidence. For most of the past 50 years, IT was largely driven by American inventiveness and entrepreneurship. U.S. companies are still major players, but IT is now a global industry, and many other countries have developed top-notch talent.

The U.S. no longer has a monopoly

on IT, and that takes some getting used to. But when you do get used to it, you start to realize that this spread of technology is making the world a better place. It is revitalizing and energizing the economy of South Africa, and the rest of the world, too.

One evening I had dinner with two other speakers from the conference. We went to an outdoor restaurant overlooking Nelson Mandela Square. Summer was coming on in the Southern Hemisphere, and the restaurants that lined the square were filled with people. My companions were South Africans of Indian and Afrikaner descent, respectively. We talked about all sorts of things, from the changes that South Africa has gone through in the past 10 years to the political and economic evolution that has made that possible. And we talked about how the build-out of data and telecom networks by South African companies is starting to drive economic growth in much of the rest of Africa.

We came from very diverse backgrounds, yet our common experiences with IT and our thoughts on how IT will shape the future gave us reason to be together. IT and telecommunications are to the world's economy today what steel and railroads were at the start of the 20th century. They are the foundation upon which all sorts of other businesses can grow and thrive. There is something about a beautiful, warm African night and the company of people of goodwill that gives you the feeling that great things can happen. I am proud to be a part of it. **51335**

DAN GILLMOR

Apple Suit Is Wrong Kind Of Different

WHEN Steve Jobs took the stage at the recent Macworld Conference and Expo in San Francisco to make his keynote speech, suspense was thick in the cavernous hall. But it wasn't the standard "What will he announce?" brand of suspense that has marked Apple Computer's recent events of this kind.

What made it different was that the previous week, Apple had sicced lawyers against one of the most popular Web sites that publish information and speculation about Apple, its products and its plans. The company's lawsuit had all but confirmed the site's rumors — and the audience was essentially waiting to hear what it already knew.

Apple, one of the most famously secretive companies in the technology business, frames this case and several like it as little more than attempts to protect massively valuable trade secrets. The value strikes me as questionable, and the larger reality is an Apple-aimed dagger at one of the foundations of free speech: a vibrant press.

IT may think it has no horse in this race. I think IT should — ahem — think different. A culture of secrecy, enshrined in law, would make it even harder for companies to know what's going on, in a time when transparency should be ascendant.

In the case at hand, the target is Think Secret (*www.thinksecret.com*). The site, operated by a Harvard freshman named Nicholas Ciarelli (who goes by the site pen name of Nick dePlume), had apparently gotten information that was leaked by someone, perhaps inside Apple, about the consumer products Apple would be announcing.

Apple has said in statements that Think Secret induced people to violate nondisclosure agreements and that this somehow gives Apple a cause for legal action. That's debatable, but I'm fairly sure of this: If the party leaking information to Think Secret had sent it to, say, the *San Jose Mercury News* or *The New York Times* — and had those publications run the news, as they no doubt would have — Apple wouldn't be suing. Both newspapers have deep enough pockets to defend themselves.

This case looks to me — and to prominent San Francisco lawyer Terry Gross, who is representing Think Secret at no cost — like a bald attempt to bludgeon a publisher into submission. In media interviews, Gross has said he believes that the case is about intimidation, not about finding the source of the leaks.

The Think Secret case isn't the first time Apple has sent its lawyers after Web sites that posted information about possible upcoming products. Late last year, the company sought subpoenas requiring various sites to reveal their sources, and it got a court order. The Web sites are fighting the subpoenas on the grounds that they are journalists under California and federal law. (Disclosure: I have agreed to file a declaration on their behalf, saying that they are indeed performing a journalistic function. I am not being paid to do so.)

In all of these cases, free speech is the target. While we can sympathize with Apple's desire to keep product announcements quiet until the day it wants to make them, a vibrant press is more important than a company's product secrecy — despite Apple's pious claim that it's not attacking free speech.

If a company wants to take steps to control its own employees' activities, including firing or suing workers who reveal secrets, that's its right. When it seeks to put a gag on the people who merely receive the information, that's going way too far. **52263**

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READERS' LETTERS

Stronger, Longer Passwords May Not Lead to Better Security

I LONG AGO REALIZED that the more difficult one makes a password, the greater the likelihood that it will be written down and kept in an obvious location (taped to a monitor, for example). I've made lots of simple suggestions, such as typing a password with caps locked while using the shift key to get something like "pASSWORD," typing a familiar number while pressing the shift key, or using passphrases ("The Password Is: Useless (Probably)." QuickLink 51072). None of it works.

In my opinion, the only workable solution for real security is biometrics. I just hope they become affordable before it's too late.

T. Ross Valentine
Senior network administrator, Technology Re-Visioned, Plano, Ill., trvalentine@yahoo.com

ONE WAY I've found to come up with hard-to-guess but easy-to-remember passwords is to use one of the freely available "pronounceable" password generators available on the Internet. It would be more secure to generate them *within* the firewall, I suppose, but I customize the generated passwords by adding digits and punctuation.

Thomas Swann
Consultant, Vienna, Va., tswann01@yahoo.com

C.J. KELLY'S NOTION that a long passphrase is stronger than a password is a fallacy. This hypothesis may appear correct from a purely statistical analysis (permutational computation). However, if a smart dictionary attack is used, passphrases are rather simple to crack, especially if the passphrase forms an intelligible sentence that can easily be guessed by the attacking application.

Jay Barbour, CISSP
Dallas

THE QUESTIONS TO ASK are, "What needs to be secured?" and, "How secure does it have it to be?"

Locking down entire workstations is a bit over the top when the worst thing that could happen is that an unauthorized person could browse the Web or use the word processor.

The standard password policy is good enough to secure workstations, but storage of confidential files should use something like biometric verification of a password.

There is a whole array of fingerprint, hand geometry and face geometry readers available (no one should use the unhealthy iris scanners). There is also software that allows access only when a hand, a finger or the face is presented.

In regards to cost-effectiveness and space consumption, fingerprint readers have the lead here, but fingerprints require huge templates compared to hand geometry in order to accurately identify a person.

Finally, the weakest link in the chain is the authorized personnel. Even the thickest door is like air when the one holding the key is careless or fraudulent.

Security is a matter of managing access and maybe even micromanaging access down to a directory or file level.

David Krings
Bristol, Conn.

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Fr: I need training to install this
To: my intern installed this

QUICKSTUDY

Bayesian Logic and Filters

Bayesian logic is a type of statistical analysis discovered by Rev. Thomas Bayes (right) that can quantify an uncertain outcome by determining its probability of occurrence. Bayesian filters are used in spam-control software because they can adapt over time using new data. **Page 28**

SECURITY MANAGER'S JOURNAL

Keeping Wireless Rogues in Check

It took months of testing and wrestling with budget constraints, but Mathias Thurman has finally come up with a wireless policy. **Page 30**

OPINION

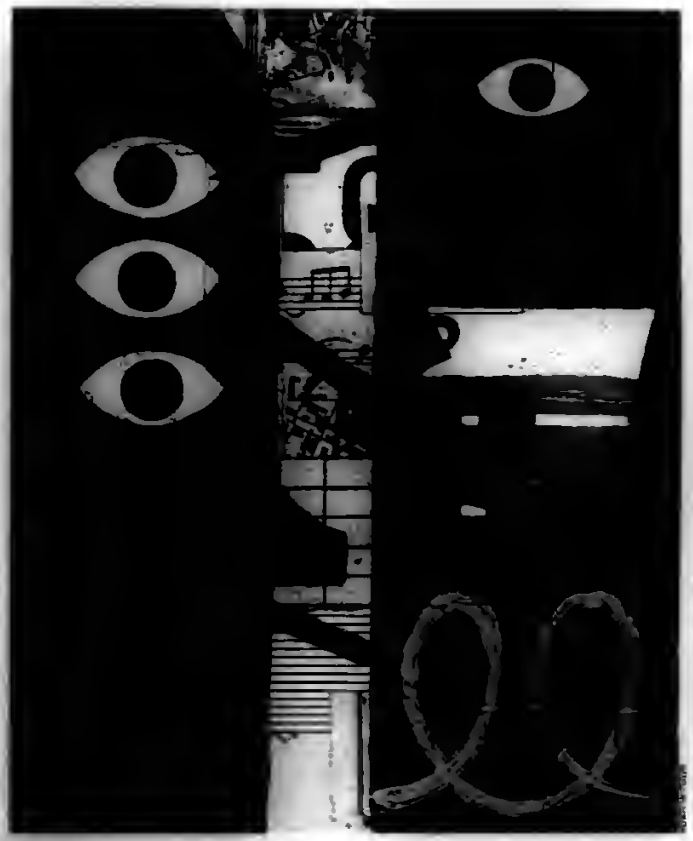
Why IT Projects Fail

Jian Zhen outlines five of the most common causes of project failure and offers suggestions to head them off before a project begins. **Page 31**

Command & Control

Organizations are turning to **security information management systems** to coordinate all the disparate defenses on their networks.

By Drew Robb



IRAQ ISN'T THE ONLY WAR costing billions. According to Gartner Inc., 4% of IT budgets now go to security hardware and software as companies deploy an army of firewalls, intrusion-detection and -prevention systems, antivirus tools and VPNs, as well as authentication, access-control and identity management systems, to keep out hackers, criminals and other marauders.

But as any commander will tell you, battlefield success isn't just a matter of superior firepower. It also depends on communication.

From an IT standpoint, the challenge is how to best turn a ragtag bunch of security assets — each with its own log files, its own data structure and its own rules — into an elite defensive unit. To achieve this, companies are turning to security information management (SIM) software, which is designed to do for security what products such as Tivoli have done for networks — simplify management, provide greater visibility and improve response times.

Chaim Feldman, network and systems security manager at Bezeq-The Israel Telecommunications Corp., Israel's national telecommunications provider, reports that his company wards off 3,000 to 4,000 attacks per month. To gain control over the situation, he installed Computer Associates International Inc.'s eTrust Security Command Center (SCC). "Before I had this, I was kind of blind," he says. "I couldn't actually see all of my company."

Stopping the Data Deluge

Establishing comprehensive security requires more than just deploying an ever-expanding array of software and devices. It also means turning them into a coordinated set of managed assets.

"Everything was a big mess," says Jim Patterson, security analyst for the Illinois state government's Legislative Information System. "Even from a major vendor like Cisco, each device had its own reporting console."

To make matters worse, Patterson found that each device's software package typically had to run on its own PC. That meant having to track alerts from an array of machines, all of which needed to be logged onto separately.

Further complicating the issue, the firewalls generated more log traffic than the built-in database could handle. At the recommendation of Cisco Systems Inc., Patterson installed nFX Open Security Platform from net-Forensics Inc. in Edison, N.J.

"With SIM in place, you can reduce the number of people you need to have monitoring things, since everything is

Continued on page 23

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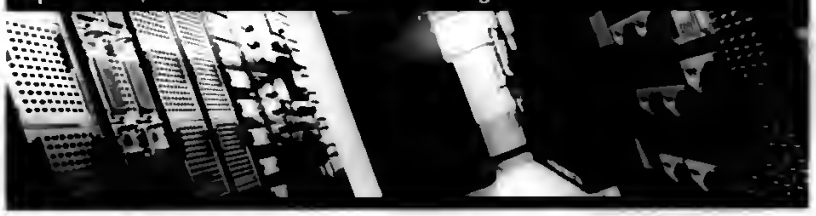

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Registration Open 11:00am - 8:30pm

9:00am – 9:30am	Breakfast
9:30am – 11:30am	**Pre-Conference Tutorials and Primers**
11:30am – 1:00pm	Luncheon
12:00pm – 5:00pm	**Pre-Conference Golf Outing**
1:00pm – 5:25pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
6:00pm – 8:00pm	Welcome Reception

WEDNESDAY, APRIL 13

Registration Open 7:00am - 8:00pm

7:15am – 8:15am	Breakfast
8:15am – 8:30am	**Opening Remarks**
8:30am – 9:15am	**Opening Visionary Presentation: The Likeability Factor** The research is overwhelming – for personal, corporate and national success we have to possess a sufficient L-Factor. Bestselling author Tim Sanders has studied and written about this problem in his second book ***The Likeability Factor*** (Crown/Spring 2005) and now has the research-based program to show audiences how to boost their L-Factor for greater success on all levels. This visionary presentation outlines how likeability is the key to finding success in relationships, product design and even business life. **Tim Sanders**, Leadership Coach, Yahoo! and Author of ***Love is the Killer App*** and ***The Likeability Factor***
9:15am – 9:45am	**End-User Case Study**
9:45am – 10:15am	**Industry Leader Presentation** Ann Livermore, Executive Vice President, Technology Solutions Group, Hewlett-Packard
10:15am – 10:30am	Break
10:30am – 11:00am	**End-User Case Study**
11:00am – 11:30am	**Industry Leader Presentation**
11:30am – Noon	**End-User Case Study: The Story (and Storage!) Behind Kodak's Online Photo Success** Sonja Erickson, Vice President, Technical Operations, Kodak EasyShare Gallery
Noon – 12:45pm	**End-User Panel** Moderated by: Steve Duplessie, Founder & Senior Analyst, Enterprise Strategy Group
12:45pm – 2:00pm	Luncheon

WEDNESDAY, APRIL 13 (continued)

2:10pm – 5:40pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
5:40pm – 8:40pm	**Expo with Dinner and Interoperability & Solutions Demo** • 30 plus SNIA member companies collaborating on integrated solutions • Opportunity to meet leading experts and engineers

THURSDAY, APRIL 14

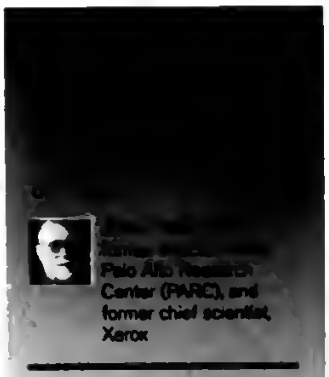
Registration Open 7:00am - 6:00pm

7:15am – 8:15am	Breakfast
8:15am – 8:30am	**Opening Remarks**
8:30am – 9:15am	**Opening Visionary Presentation**
9:15am – 9:45am	**Industry Leader Presentation**
9:45am – 10:15am	**End-User Case Study** Bob Logan, Vice President, Enterprise Infrastructure Services, SAIC
10:15am – 10:30am	Break
10:30am – 11:00am	**Industry Leader Presentation**
11:00am – 11:30am	**End-User Case Study**
11:30am – Noon	**Industry Leader Presentation**
Noon – 12:45pm	**Panel Discussion** Moderated by Jon William Toigo, CEO & Founder, Toigo Partners International
12:45pm – 2:00pm	Luncheon
2:10pm – 5:40pm	IDC **Storage Analyst Briefing**
2:10pm – 5:40pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
4:00pm – 7:00pm	**Expo Open** • Cocktail Reception in Expo begins at 5:30pm
7:00pm – 9:30pm	**Gala Evening with Dinner & Entertainment**

FRIDAY, APRIL 15

Registration Open 7:30am - 10:00am

7:30am – 10:00am	Continental Breakfast
8:30am – 12:30pm	**End-User Case Studies; SNIA Voice of the User Track; SNIA Technical Tutorials Track; Deployable Solutions Track**
12:30pm	Conference Concludes



Palo Alto Research Center (PARC), and former chief scientist, Xerox

"... SNW is a great venue for peer discussion ... an opportunity to provide feedback to vendors on what users need from them ..."

John Greer
Director,
IT Infrastructure,
Pacific Gas & Electric

The Wildfire Golf Club, Faldo Course
Phoenix, Arizona

Pre-Conference Golf Outing
Complimentary for Registered IT End-Users

The Pre-Conference Golf Outing at The Wildfire Golf Club, Faldo Course located at the JW Marriott Desert Ridge Resort, is complimentary ($165 value) for registered IT End-Users (other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses).

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Please check ONE of the following:	Earlybird Registration (through February 28, 2005)	Full/Onsite Registration (after February 28, 2005)
❑ **I am an IT End-User*** (Complete Attendee Profile below)	❑ **$895** General Conference Package (April 13 & 14) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,290** Total 4-Day Package (April 12, 13, 14, 15) (includes General Conference plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test-Ready" Courses)	❑ **$1,295** General Conference Package (April 13 & 14) (includes General Conference Sessions, Expo, Meals & Receptions) ❑ **$1,690** Total 4-Day Package (April 12, 13, 14, 15) (includes General Conference, plus Technical and Business Tracks, SNIA-produced Tutorials, SNIA-Certification "Test Ready" Courses)
❑ **I am a Channel Partner/ Integrator/Consultant** (Complete Attendee Profile below)	❑ **$3,000** Total 4-Day Package (April 12, 13, 14, 15) (includes General Conference: Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)	❑ **$3,500** Total 4-Day Package (April 12, 13, 14, 15) (includes General Conference: Technical and Business Tracks, SNIA-produced Tutorials, SNIA Certification "Test-Ready" Courses)

* IT End-Users are defined as those who are attending Storage Networking World with an intent (and an IT spending budget) to potentially buy/lease hardware/software/services, etc. from our conference sponsors and are not themselves an IT vendor. As such, account representatives, business development personnel, analysts, consultants, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of the policy are at the sole discretion of Computerworld.

By participating in SNW's Channel Partner/Integrator registration package, registrants may enjoy the following benefits: One company representative may receive a full conference pass to SNW Spring 2005; additional company representatives pay $695 each for full conference passes; company may invite up to five IT User customers to attend SNW Spring (IT Users must be strictly compliant with IT User definition on the supplied registration form); companies registering for this package interested in joining the SNIA are eligible to receive a $2,000 discount, provided that membership is applied for prior to March 1, 2005.

Attendee Profile: This section MUST be completed by IT End-Users and Channel Partners/Integrators/Consultants only (optional for all other registrations) in order to process your application.

Your Business/Industry
- ❑ Aerospace
- ❑ Manufacturing & Process Industries (non-computer related)
- ❑ Finance/Banking/Accounting
- ❑ Insurance/Real Estate/Legal Services
- ❑ Government: Federal (including Military)
- ❑ Government: State or Local
- ❑ Health/Medical/Dental Services
- ❑ Retailer/Wholesaler/Distributor (non-computer related)
- ❑ Transportation/Utilities
- ❑ Communication Carriers (ISP, Telecom, Data Comm, TV/Cable)
- ❑ Construction/Architecture/Engineering
- ❑ Data Processing Services
- ❑ Education
- ❑ Agriculture/Forestry/Fisheries
- ❑ Mining/Oil/Gas
- ❑ Travel/Hospitality/Recreation/Entertainment
- ❑ Publishing/Broadcast/Advertising/ Public Relations/Marketing
- ❑ Research/Development Lab
- ❑ Business Services/Consultant (non-computer related)
- ❑ Manufacturing of Computers, Communications Peripheral Equipment or Software

Your Job Title/Function
IT MANAGEMENT
- ❑ CIO, CTO, CSO
- ❑ Executive VP, Senior VP
- ❑ Vice President
- ❑ Director
- ❑ Manager/Other IT Manager
- ❑ Supervisor

BUSINESS MANAGEMENT
- ❑ CEO, COO, Chairman, President
- ❑ CFO, Controller, Treasurer
- ❑ Executive VP, Senior VP, VP, General Manager
- ❑ Director, Manager
- ❑ Other Corporate/Business Manager

Number of employees at your entire organization (ALL locations)
- ❑ 20,000 or more
- ❑ 10,000 - 19,999
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ 50 - 99
- ❑ Less than 50

What is your organization's annual IT/IS budget for all IT/IS products?
- ❑ $1 Billion or more
- ❑ $500 Million - $999.9 Million
- ❑ $100 Million - $499.9 Million
- ❑ $50 Million - $99.9 Million
- ❑ $10 Million - $49.9 Million
- ❑ $1 Million - $9.9 Million
- ❑ $500,000 - $999,999
- ❑ $250,000 - $499,999
- ❑ $100,000 - $249,999
- ❑ Less than $100,000

What is the estimated annual revenue of your entire organization?
- ❑ Over $1.0 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Less than $100 Million

The one item that best describes your involvement in the IT purchase process
- ❑ Authorize/approve purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Specify features/technical requirements
- ❑ Set budget for expenditures
- ❑ Determine need to purchase
- ❑ Create IT strategy
- ❑ All of the above

Would you like to receive information about playing in the golf outing on Tuesday, April 12th?
- ❑ Yes
- ❑ No

Do you need hotel accomodations?
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- ❑ No

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❑ **I am a representative of a Non-Sponsoring IT Vendor Company**
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Vendors are encouraged to participate in Storage Networking World through sponsorship. (Details are available by calling Ann Harris at 508-820-8667.) Alternatively, vendors (as well as other "non-IT end-user" professionals as defined by Computerworld) may apply for registration at the "non-sponsoring vendor" rate of $5,000. Determination of what constitutes a "non-sponsoring vendor" registration is made exclusively by Computerworld. Please call 888-239-4505 with questions.

❑ **I am a Financial/Equity Analyst and/or Venture Capital Professional**

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❑ **I am a qualified member of the press.** I can verify my press credentials.
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3) The registration fee will be refunded, less a $250 service charge (if written notice is received by March 21, 2005).
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One of the key functions is to reduce the number of false or inconsequential alerts that employees must review.

"We began implementing intrusion-detection systems a few years ago," says Chris Rein, chief of infrastructure and production services for the New Jersey Office of Informatioo Technology. "The volume of data would overwhelm any person or small group looking at it."

Rein's experience is far from unique. Ulises Castillo, CEO of Scitum SA, a managed security service provider in Mexico City, says that he feeds 3 million to 10 million events per day from the 350-plus devices he manages into his Security Threat Manager 3 SIM from OpenService Inc. in Westboro, Mass. In doing so, he reduces the number of alerts by a factor of 10,000.

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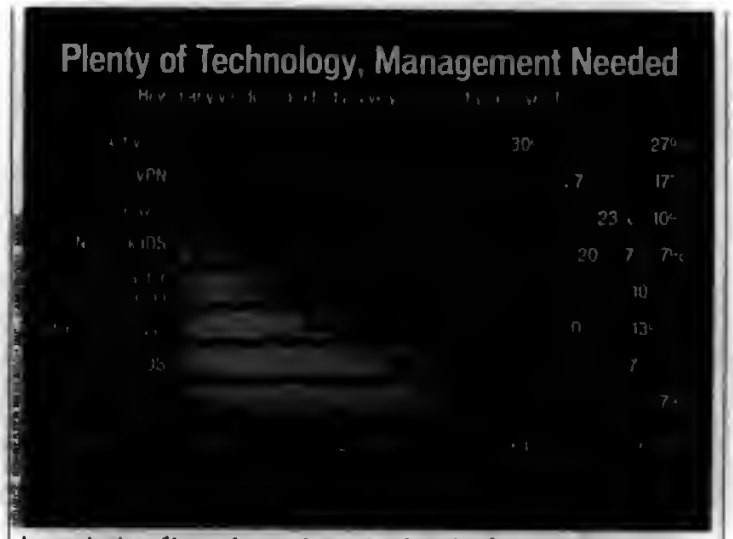
"We can play events back and see what devices it is hitting and track it back," says Lukas. "We have quite a few thousand switches out there, but we are getting to the point where we can see which port in the entire network a situation is coming from."

Companies looking to install SIM systems have a choice between server-based software and appliances. The New Jersey government chose the latter option. It uses PN-MARS appliances from Protego Networks Inc., which was recently acquired by Cisco. Rein says the state started with a few appliances for testing and is now purchasing more to put its WAN under complete surveillance. Beyond that, it will enter into agreements with agencies to set up more specific and granular monitoring of internal networks.



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Bezeq took the software approach. The company runs CA's eTrust SCC oo a server sitting on a separate security network that monitors two production networks — one for customer services and another for internal operations.

Feldman says that having the SCC has given him better visibility into the types of attacks on his network and where they are hitting. For example, he once spotted a recently fired employee attempting to gain access to a sensitive server. Another time, the data-correlation feature detected a virus starting to spread, allowing Feldman's staff to disconnect the subnet to stop it.

Setting Expectations

Implementing a SIM is a major undertaking. Installing the software or appliance itself is generally simple enough, but setting up the desired monitoring and reducing the number of false positives takes work.

"When [companies] embark on a large SIM project — about 300-plus audit sources/nodes — they should put aside at least $50,000 in services budget for the vendor or a competent third party to come in, install and tune for appropriate business requirements," says Paul Proctor, an analyst at Meta Group Inc. "Deployments involving over 1,000 monitored nodes are usually multiyear efforts, so set realistic expectations and project goals."

John Summers, Unisys Corp.'s global director for managed security services, is engaged in just such a large-scale project. He's installing ArcSight Inc. software at his company's three security operations centers, which manage security for 200 customers in addition to handling Unisys' own needs. The installation began in June 2003, and Summers expects to be able to view security events on a global scale sometime in the first half of this year. He can already manage customers on an individual or regional basis and has been able to detect zero-day attacks on one customer and harden the defenses of other customers before they're hit. "The only way to do that is to have a platform that can do complex pattern detection across a heterogeneous infrastructure and across time," says Summers.

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To meet the regulatory deadline, CEC purchased five days of consulting time to quickly get the netForensics software up and running. That was enough to establish compliance, but Gabriel says he still has a lot of work to do to fully use the system's functions.

"It's a complex system, and you will get out of it what you put into it," he says. "I still feel we have just scratched the surface of its capabilities."

Part of what companies must put in is the work to ensure data quality. "SIM suffers from a huge garbage in/garbage out problem, and most of the data collected by enterprises is garbage," says Meta Group's Proctor. "They don't usually realize this until after spending several hundred thousand dollars on a huge monitoring infrastructure only to realize they are deriving on benefit."

Like other types of management software, SIM is only a tool. It can assist your security personnel in better securing the enterprise, but it's not a replacement for their perception and skills.

"You automate data collection, data correlation, data search — the tasks that are boring and suitable for computers," says Bruce Schneier, an author and chief technology officer at Counterpane Internet Security Inc. in Mountain View, Calif. "But you can't automate intelligence, and you can't automate creative thinking." **52131**

Robb is a Computerworld contributing writer in Los Angeles. Contact him at drewrobb@attbi.com.

SIM FOR THE LITTLE GUY

Expensive SIM systems are primarily used by big corporations, but there are options for smaller firms.

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The Market And the Players

According to Gartner, the worldwide SIM market had grown to $100 million by 2003. The Stamford, Conn.-based research firm also estimated that 20% of Fortune 1,000 companies were using security management software in that year and that vendors would double their installed bases in 2004.

The SIM market is divided into two main categories. First, there are vendors that specialize in SIM, such as OpenService, netForensics, Intellitactics, ArcSight and Network Intelligence Corp. Then there are larger companies that sell SIM products to complement their other management or security offerings. They include Computer Associates, IBM's Tivoli Software unit, Symantec Corp. and NetIQ Corp.

The smaller vendors' products generally offer more complete sets of features. But the larger companies offer products that are interoperable with their other offerings and that they can sell to their existing clientele.

– *Drew Robb*

SIM FOR THE LITTLE GUY

Expensive SIM systems are primarily used by big corporations, but there are options for smaller firms.

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- 256MB DDR SDRAM[5]
- 30GB hard drive[6]
- CD-RW/DVD-ROM combo
- IBM UltraConnect™ Antenna for increased signal strength
- 1-yr system/battery limited warranty[8]

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MODELING Magic

IT-based operations research builds better supply chains at Procter & Gamble. By Gary H. Anthes

OPERATIONS RESEARCH, the application of modeling and mathematics to business problems, had had a checkered history at The Procter & Gamble Co. since it was first tried in 1968. That all changed in 1993, when P&G hit a financial home run using the process and operations research (OR) leapt to prominence at the company.

In the early 1990s, the maker of Pampers diapers, Pert shampoo, Pringles potato chips and nearly 300 other consumer products decided to look broadly and deeply into its entire North American manufacturing and distribution network, and it tapped two IT staffers to join a team charged with reducing supply chain costs and improving efficiency. The project team developed computer models that pointed the way to a supply chain restructuring that would consolidate P&G's North American plants by 20% and lower supply chain costs by $200 million a year.

"That project planted a seed," recalls Glenn Wegryn, one of the analysts on the project and now associate director of P&G's 17-person OR group, known as IT Global Analytics. "It really was a wake-up call about the capability you could provide by using OR tools tied to a deep understanding of how P&G's operations worked."

While many companies put OR in their engineering or research departments, P&G put its OR group in its IT shop. "IT is one of the very few organizations within a company that has true end-to-end visibility into all the operations of the company," says Wegryn. "Part of our success is that we are a crossover capability; we have as much business knowledge as we do knowledge of our instruments and tools."

Wegryn's group works on some 100 projects a year and has worked in every P&G product category and geographic region. Most, but not all, of the problems considered by Global Analytics can be thought of as supply chain questions: How many plants should there be for this new product, and where? Where should distribution centers be located? What's the optimum transportation network? How can we deliver faster and better to these particular customers?

Global Analytics has no fixed annual budget; instead, it must find internal clients willing to fund its services. Wegryn is guarded about the financial results of individual projects, but he will say that he aims to save P&G 10 times his group's salary costs on OR projects. "We far exceed that goal," he adds.

P&G applies IT-assisted analytic techniques in three broad areas. First, it uses optimization models to determine how best to allocate supply chain resources, most often on the basis of net present value.

Second, simulation models allow P&G to mathematically try out various options to see how they might play out over time, and to test the sensitivity of results to changes in key variables. Simulation and optimization models are often used together. An optimization model may point to an option that is further evaluated and tweaked by simulating how a supply chain would behave under that option and how stable it is.

"We've found that the success of a supply chain is not necessarily operating at the absolute optimal solution, but operating at one of the more robust solutions in the real world," says David Dittmann, a Global Analytics manager.

Third, the company uses decision analysis, which involves the use of techniques such as decision trees that combine the probabilities of various outcomes and their financial results.

Levels of Complexity

P&G's models are implemented in several ways, depending on the complexity of the problem. Some are written in Microsoft Excel, which is often pushed way beyond the capabilities of simple spreadsheets by commercially available add-ons. For example, P&G sometimes uses What'sBest from Lindo Systems Inc. in Chicago to build large-scale optimization models within a spreadsheet. Another favorite is PrecisonTree, a tool for building decision trees inside spreadsheets, from Palisade Corp. in Newfield, N.Y.

P&G also uses stand-alone OR packages, such as Xpress-MP from Dash Optimization Inc. in Englewood Cliffs, N.J., and Cplex from Ilog Inc. in Mountain View, Calif., which are for constructing optimization models. It uses Extend from San Jose-based Imagine That Inc. for building simulation models. Dittmann says some of the packages require programming — coding rules to define objectives and constraints, for example.

While the models are developed by Dittmann and others in Global Analytics, the data is maintained and served up by traditional IT resources. Most of the information comes out of a 25TB Oracle data warehouse called SourceOne, which contains 36 months of supplier, manufacturing, customer and consumer histories by region.

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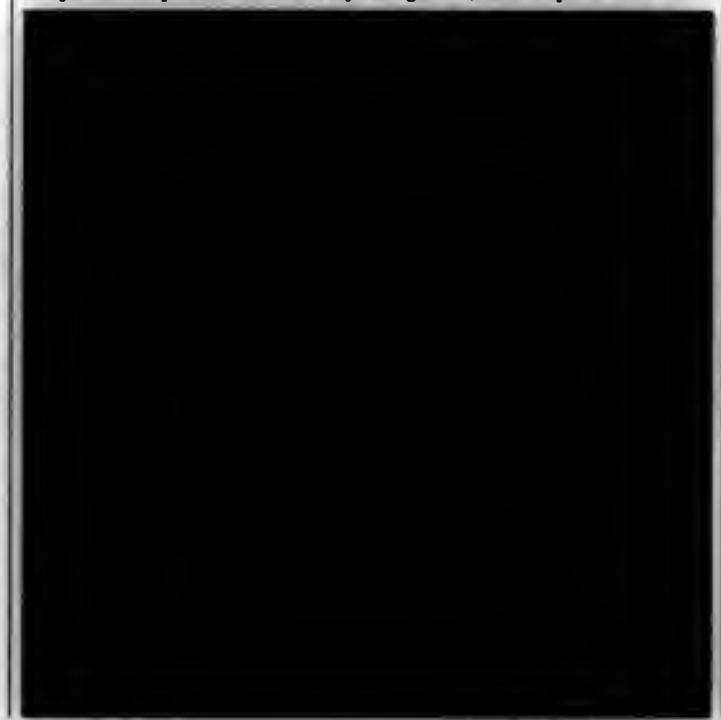
churning through terabytes of information. "What's really the key to OR is not just the technical side; it's also the very deep understanding of how a business operates," Wegryn says.

Indeed, the OR people at P&G say their skills as business consultants can make all the difference. Joel Kahn, a section manager in Global Analytics, says he helps his internal customers move their problems "from the gut to the head." He often begins OR projects by asking his customers these questions: What are you trying to decide? On what measure will you base a decision? What are the options? What's bothering you, and what's uncertain?

Kahn helps users answer those questions in a meeting that typically lasts a day or less. A six-month project to develop and run sophisticated models may come next, but not always. Says Kahn, "About one out of five or six times, people say, 'Now I understand it. I don't need to do any more analysis. I didn't realize my options were so simple.' "

Jean Kinney, a purchasing manager at P&G, tells of the launch of a new global health care product whose success hinged on the careful choice of plant locations and sources of raw materials. "It was extremely complicated, and there were literally millions and millions of possibilities," she recalls. "If you went to the managers in the countries that would be marketing this product, they'd all say, 'Well, the plant should be located in my country.' But if you talked to some of the corporate experts, they'd say, 'But scale is important. You should build one big megaplant somewhere.' And there were millions of options in between. So how do you come up with the best approach? Modeling techniques allowed us to do that."

To help Kinney solve the problem, Global Analytics constructed Excel-based models using Lindo's What'sBest for optimization and the Palisade's @Risk add-on module for Monte Carlo simulation, in which values for uncertain variables are randomly generated. The models sought to maximize net present value and, for each country, considered manufacturing costs, freight costs, taxes, import/export duties, local wage rates, cost of capital and more.



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P&G has dozens of beauty care products, each coming in multiple sizes and package designs. Change is constant, and the tiniest modification can ripple through the supply chain. "A simple cap change may, for example, only be sourced from a Chinese supplier, and now I've added 60 days to my supply chain time," Policastro says. "What does that do to inventory levels, service levels, costs and so on?"

The complexity of his supply chains and the consequent need for automated OR techniques will only grow, says Policastro, as P&G increasingly tries to address the needs of each of the retailers it works with, as well as the needs of different groups of consumers. "A Wal-Mart hair-care shopper may not have the same needs as a Target shopper," he says. "We are now going through customer and channel differentiation and are marrying that with greater consumer insights.

"Having worked with Global Analytics for a couple of years, I think they embody the term *IT* — information technology — very well in the sense that they couple not just the technology of analytics, modeling and options analysis with information, but also with the knowledge of key supply chain information such as import duties, the latest tariff regulations, trends in labor costs, and P&G manufacturing principles," Policastro says.

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OPERATIONS RESEARCH TECHNIQUES

For an overview of various OR methods for different situations, visit our Web site:

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CASE STUDY

Incorporated:

Annual revenue:

Employees:

Products:

Billion-dollar brands:

Plants:

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MOST APPLICATIONS

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Bayesian Logic And Filters

DEFINITION

Bayesian logic is a type of statistical analysis that can quantify an uncertain outcome by determining its probability of occurrence using previously known, related data. Bayesian filters are used in spam-control software because they can adapt over time using new data.

BY RUSSELL KAY

SOME SAY that if you can't measure something, you're not doing science. Bayesian logic offers a way to measure things that were previously unmeasurable, allowing us to test hypotheses and predictions and thereby refine our conclusions and decisions. Bayesian filtering is a hot topic in the area of spam control today.

Basic probability is simple to calculate, because you're dealing with a limited number of factors and possibilities. Let's consider a horse race with 10 horses entered. If that's the only information we have on which to base a wager, then we could pick any horse on the basis that its chance of winning is 1 in 10, or 0.10. Take that kind of math to the track, however, and you'll quickly be separated from the contents of your wallet. The real world is far more complicated, and here's where Bayesian logic comes into the picture.

In fact, each of the 10 horses has already run at least a few races and therefore has a history. If Lightning has won every race he has entered, and Thunder has lost every one he has entered, then we've got a real evidential basis on which to bet on Lightning instead of on Thunder.

In fact, there's a lot more information available about every horse in the race. We know or can easily find out the following:

Lineage: Is this horse the offspring of a champion? How have his brothers and sisters performed?

Performance under different weather conditions: If it rains in the morning and the track is soft, how does that affect his speed?

Position on the track: Is our horse next to the rail or on the outside? And how does the horse react when he's in that position?

Length of time since last race: If the horse ran a long, hard race yesterday, how well is he likely to run today?

Distance of today's race: How has the horse fared at this distance in the past?

Other people's betting patterns also come into play. They don't affect how well a horse will perform, but they have a clear impact on the size of the payoff if he does win.

All of this information can help us make a better estimate of our horse's chance of winning than the simplistic 1 out of 10. Analyzing these factors is a Bayesian process.

Similar things are happening in the world of Major League Baseball — ever the province of voluminous statistical records. Team owners and general managers are using Bayesian analysis when they study the way players perform under various conditions and in specific situations and factor that information into their decisions about the players they want to draft or seek in trades.

Bayesian Antispam

The application of Bayesian logic to the spam problem got its start in Paul Graham's 2002 paper "A Plan for Spam" (*www.paulgraham.com/spam.html*), an approach that was soon adopted by numerous developers. Bayesian spam filtering is based on the notion that the presence of certain words will indicate spam, while other words will identify a message as legitimate. It has that in common with other types of scoring-content-based filters, but with the added advantage that Bayesian filters create their own lists of telltale words and characteristics rather than working from lists created manually.

A Bayesian filter starts by examining one set of e-mails known to be spam and another set known to be legitimate (the prior knowledge). It compares the contents for both sets — not just the message body, but also header information and metadata, word pairs and phrases, and even HTML code for information such as the use of specific colors. From this, it builds a database of words, or tokens, with which it can usefully identify future e-mails as spam or not.

Bayesian filters take into account the whole context of a message. For example, many spam messages contain the word *free* in the subject line, but so too do some legitimate messages. A Bayesian filter notes this word but also looks at other tokens in the message, because falsely identifying a real message as spam (called a false positive) causes more problems than letting some spam through as legitimate.

According to proponents, less than 1% of the messages identified as spam by Bayesian filters are false positives.

The Bayesian spam filter's real power, however, lies in its ability to learn: As the user tags new messages, the filter updates its database to identify new patterns of spam. **52153**

Kay is a Computerworld contributing writer in Worcester, Mass. Reach him at russkay@charter.net.

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Bayes and His Theorem

Rev. Thomas Bayes (1702-1761), an English clergyman, is credited as the author of "An Essay Towards Solving a Problem in the Doctrine of Chances." Published posthumously in 1763, the paper set out what we now call Bayes' Theorem, a formula for estimating the probability that something will occur based on the likelihood of related background events. I won't bore you with the formula here, but we can understand it to signify the truth of a statement or proposition, such as determining whether a particular e-mail is spam.

Before publication, Bayes' equation, let's call it, underwent some editing and refinement from statistician Richard Price. The expression p(B|A) refers to the probability that event A will occur. When we say p(A|B), this stands for "the probability that event A will happen, given that event B has already happened." With that notation, here is Bayes' Theorem:

$$p(A|B) = \frac{p(B|A)\,p(A)}{p(B)}$$

I suspect that most readers won't find this equation especially helpful, and I'm not about to attempt mathematical derivation; the explanation already fosters it. But it does show that Bayesian analysis is based on calculations that make use of prior knowledge.

For a much more thorough explanation, read Eliezer Yudkowsky's clear, detailed, step-by-step online tutorial, "An Intuitive Explanation of Bayesian Reasoning: Bayes' Theorem for the curious and bewildered; an uncannily good explanation of" (*http://yudkowsky.net/bayes/bayes.html*). It's long — you should set aside at least a half hour to study it — but by the end, you'll have a good understanding of things Bayesian.

—Russell Kay

Nokia for Business

R.O. Ida, The Chief Financial Officer

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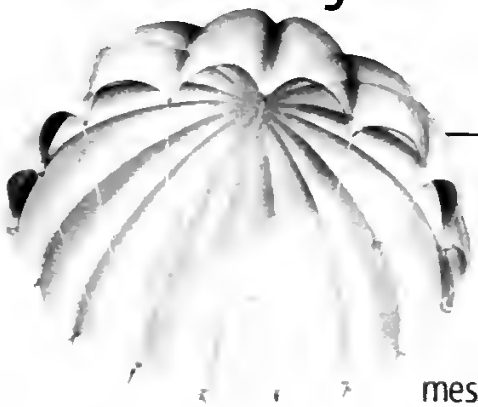

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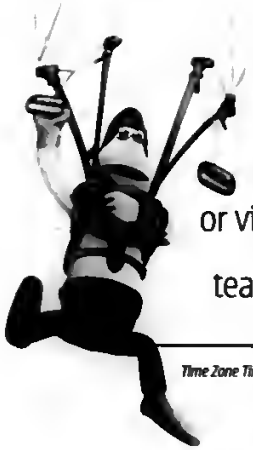

Time Zone Tim

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Metro Mel

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Keeping Wireless Rogues in Check

After months of testing and taking budget constraints into consideration, our security manager comes up with a wireless policy. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

I FINALLY SETTLED on a strategy for wireless security.

As wireless access points began appearing on our company's network, we configured them with Cisco's Lightweight Extensible Access Protocol. (See my Nov. 8 column, "Taking the Leap to PEAP for Wireless," QuickLink 50430.) LEAP forces users to authenticate to the access point with their enterprise credentials — the same credentials used for virtual private network access, as well as services such as payroll and Microsoft Exchange e-mail. That's because we use a centralized directory that ties into most of our core applications and lets employees use a single password to sign on.

Although LEAP works well, we didn't want to take the chance that those enterprise credentials would become compromised if someone hacked the wireless infrastructure. So I decided to use Protected Extensible Access Protocol (PEAP) with RSA SecurID token authentication. This combination requires a wireless user to enter his user identity and his SecurID token, which is a personal identification number followed by a dynamic number that changes every 60 seconds. This way, even if PEAP is compromised to the extent that the user ID is obtained, the hacker would still need a SecurID token to gain access.

As I noted in November, we had to do extensive testing of this setup. Our current corporate standard is to issue Dell laptops with the TruMobile client installed. Our testing showed that the TruMobile client works well with PEAP, SecurID and the Cisco access points. Our small contingent of Linux users will need a third-party client such as Aegis from Portsmouth, N.H.-based Meetinghouse Data Communications, which supports Linux and PEAP.

Another issue is capacity, since there's a limit to how many clients can associate to a single access point. Until we beef up our infrastructure, the plan is to restrict wireless access to users who demonstrate a business need. Once a user obtains management approval, we'll send him a SecurID token with instructions on how to configure his client.

With the PEAP/SecurID portion of our wireless policy in place, I turned my attention to evaluating and experimenting with various technologies for detecting rogue access points. My decision had to be based on several factors, the first being money. Unfortunately, my company is trying to conserve resources, and there just isn't enough money to outfit every remote office with wireless sensors.

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Because the company operates worldwide, I decided to take both wireless and wired approaches to rogue access-point detection.

On the wireless side, we wanted to stick with Cisco. That wasn't because it has best-of-breed wireless sensors, but because we already have a relationship with Cisco and are already managing dozens of Cisco access points. We also believe that Cisco will eventually provide the type of functionality we're really looking for. In addition, if we use Cisco access points for rogue access-point detection, there's always the option of converting those devices back to access points.

Enterprise Searching

But we have remote offices where we can't deploy wireless sensors, and we still want to be able to discover the presence of wireless access points on the wired network. On an enterprise level, this can be accomplished in two ways.

The first is to assess every switch port's media access control address in order to find the wireless vendors' IDs (the first three octets of the MAC address). This isn't foolproof, however, since some wireless vendors also make wired equipment.

For example, Cisco makes both network hardware and wireless access points. If we come across a MAC address for what looks like a Cisco device, we could have a false positive for a wireless device.

Another problem with this method is that we might not have access to every switch in our infrastructure. In our company, some of the engineering departments manage their own network gear.

The second way to detect wireless access points on the wired enterprise network is to scan every IP address and attempt to identify access points by the responses we get. If you know the signature of an access point, you'll know when your probing has hit on one. The problem is knowing those signatures. It would be fairly simple to write scripts that would allow our Nessus scanning infrastructure to look for wireless signatures, but since each vendor could have its own fingerprint, we'd have to purchase every vendor's access points and run tests to get a proper fingerprint. Unfortunately, we just don't have the resources to tackle that task.

But we do have the resources to turn to San Mateo, Calif.-based AirWave Wireless Inc. Beyond its vendor-independent, centralized wireless management tool, AirWave has done all the legwork and fingerprinted more than 40 wireless access points. It then built a tool, called RAPIDS, that, among other features, scans the network for those fingerprints. By conducting some correlation with the MAC address scanning (which AirWave can also accomplish), we can determine whether a device that's been pinpointed by RAPIDS is rogue and then trace it back to the switch port to which it's attached.

All of this isn't a 100% fix for keeping rogue access points in check, but I feel that the combined wired/wireless approach will be about 90% effective. Over the course of the next several months, we'll deploy this technology and I'll be able to report back meaningful results.

WHAT DO YOU THINK?

This week's journal is written by a real security manager. "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: QuickLink 51500

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SECURITY LOG

Security Bookshelf

■ *Gray Hat Hacking: The Ethical Hacker's Handbook*, by Shon Harris, Allen Harper, Chris Eagle, Jonathan Ness and Michael Lester (McGraw-Hill Osborne Media, 2004).

Security professionals should keep current with hacking tools and techniques in order to prevent attacks and assess vulnerabilities. This up-to-date handbook offers information about topics ranging from the use of Ethereal and the writing and debugging of exploit code to explanations of tools such as Core Impact and Immunity Security Canvas. Questions test the reader's understanding of each chapter. Although I'd like more on certain subjects, such as writing Linux shell code, the most important aspects of each topic are well covered.

– Mathias Thurman

AOL Aims to Secure Surfing

America Online Inc. next week plans to release the first public beta of a browser designed to protect users from scams and malicious code while surfing the Web. With a frequently updated blacklist of Web sites stored on the user's PC, Netscape 8 will alert users with a red check mark in the browser tab to sites associated with phishing or the distribution of spyware or other malicious code. Netscape 8 is based on Mozilla Firefox but also supports Microsoft's Internet Explorer browser engine.

Spyware on Rise

The most malicious forms of spyware increased dramatically in the last three months of 2004, according to the SpyAudit report from EarthLink Inc. and Webroot Software Inc. From October to December, the incidence of spyware installations rose 2,020%, while the incidence of Trojan horses rose 1,341%.

BRIEFS

ManageSoft Offers Mac OS X Support

■ ManageSoft Corp. in Boston has begun providing support for Apple Computer Inc.'s Mac OS X operating system. The ManageSoft system is used for automatic deployment, updating and management of software and security patches. Support for Mac OS X allows customers with heterogeneous environments to use a single system to manage their desktops, servers and handheld devices, the company said. The product is priced at $72 per device.

Optinuity Ships Ops Management App

■ Optinuity Inc. in Bethesda, Md., is shipping C20, an operations process management system. It will improve the control, speed and reliability of application-support activities by automating administrative and problem-resolution tasks normally handled by operations personnel, according to the company. Pricing for C20 starts at $150,000 for a multiserver application environment.

Dell Introduces Business Notebooks

■ Dell Inc. last week announced three business notebook computers. The D410 weighs 3.83 lbs., has an optional nine-cell extended battery and sells for $1,677, the company said. The 4.67-lb. D610 starts at $1,384. The D610 features a 15.4-in. wide-aspect display and 128MB of dedicated memory for graphics. It weighs 6.49 lbs. and sells for $1,549.

HP 'Latch' Could Replace Transistors

■ Hewlett-Packard Co. researchers last week said they have developed a nanometer-size technology that may one day replace the transistor and shrink the size of computers. Called the "crossbar latch," it can perform functions now handled by larger transistors.

JIAN ZHEN

Why IT Projects Fail

IT'S ESTIMATED that over 50% — some say 80% — of all large IT projects fail. The reasons for that startling failure rate aren't mysterious. Too many companies make the same mistakes too many times. I've identified five of the most common causes for failure. I've also come up with some questions your organization should answer before it starts a project, to boost the chance of success.

1. The project's real value isn't understood. When calculating ROI, be sure to have a clear understanding of the total cost of ownership. Without a concrete TCO, the ROI figures are meaningless.

Understanding the various ROI metrics, acknowledging that these are fuzzy metrics and clearly defining what the organizatioo expects from a successful implementation will produce a clear view of the project's value.

2. You don't know your users. Who are the main users of the technology you're implementing? Are they business users or technical users, power users or casual users?

Business users are usually from marketing, finance and other nontechnical groups in the organization. They want to see summaries, dashboards, charts, graphs and other reports that enable them to spot trends.

Technical users are usually from IT, security and other operations groups. These are the ones who want all the nitty-gritty details. They want to drill down and diagnose problems. They perform the root-cause analysis when things go wrong.

Power users want sophisticated interfaces and flexibility. They generally use the system three or four times a week or even every day, and they can be anywhere in the organization, including marketing and finance.

Casual users are on the system once a week or less. They may not even log oo at all and prefer to receive reports via e-mail.

3. Requirements aren't clearly understood. The only way to identify real requirements is to talk to potential users and get the answers to these questions: Are your requirements based on regulations, operational problems, performance, capacity optimization or trend analysis?

Do you have platform requirements — Windows? Linux? Java? .Net? How about requirements to integrate with corporate infrastructure?

What's your requirement on performance? Scalability? Extensibility? Manageability? Usability? Security?

Before evaluating any technology, answer those questions in detail. Don't choose a product or create unreasonable requirements because of brand loyalty or FOE (friends of executives).

4. You've limited your options. Too often, companies decide that only a commercial product will meet their requirements, before all the options have been evaluated.

Before you jump to a commercial solution, you should evaluate your resources and skills within your own organization and see if you can or should go open-source. There are many factors to consider when choosing among the commercial, open-source or homegrown options.

Do you have the resources (head count) to support whatever option you choose? Commercial products may save you some development time and head count, but you may get faster feature updates if you have dedicated developers for a homegrown system.

Do your engineers have the necessary skills to maintain an open-source product or develop a homegrown solution? This really goes back to your requirements.

Even if you have the resources and skills within your organization, can you spare the time from other projects? What's your budget? It will vary based on the executive sponsor, the project's scale, its urgency and other factors.

Knowing your requirements will allow you to find the right option to meet them.

5. You don't have a clear understanding of the products available. Many of the IT products out there are strong in some areas and weak in others. Many vendors will tell you that they are strong in all areas. If they tell you that, run away as fast as you can.

Tell the vendors about your requirements. Ask them to rate how well each of their products meets your requirements. Ask for an evaluation. Ask them how their software/hardware compares with that of their competitors. Ask them to share their product road map. Ask about the support structure.

Never buy a product without actually using it. There's no way to tell whether it meets your requirements by looking at PowerPoint slides.

Try to be open-minded. There are no 100% solutions. Prioritizing your requirements will help you determine which system best fits your company.

Spending some time upfront will help you avoid these common problems and allow you to meet your real requirements. 52318

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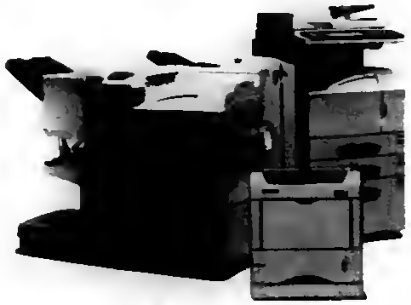

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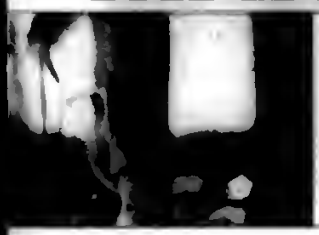

IT MENTOR

So You Want to Be a CIO?

CIO John Parker of A.G. Edwards offers a career blueprint for IT professionals with their eyes on the top spot. **Page 37**

Think Tank

Many U.S. Web sites fail to provide Spanish-language content for the fast-growing Hispanic online population; and a new book says competitive advantage will come from figuring out the right mix of machines and people to improve customer service. **Page 36**

OPINION

Workplace Obligations

Trying to relate to your boss can tear you up and tucker you out without accomplishing much. Paul Glen suggests a simpler way to figure out your responsibilities at work. **Page 39**

BRAD YEO

Buy OR Build?

It's tempting to hire your next IT manager from the crowded job market, but there's also value in building management skills the old-fashioned way. BY MARY K. PRATT

JOYCE L. YOUNG is adding three new manager positions to her 50-person IT group. She wants to fill the new slots by March. It's a tight schedule, but Young has a plan: Promote from within.

"I know I have to go outside for certain technical expertise I don't have inside, but I really try to look internally if I can," says Young, the Chicago-based CIO at CP Kelco, a J.M. Huber Corp. company.

As the list of required skills for technology and management jobs grows, CIOs like Young must decide whether to "build" or "buy" managers. Each strategy comes with its own benefits and drawbacks, so CIOs should weigh time requirements, organizational needs and even retention plans when deciding which way to go.

"There's no black-and-white answer. It's very situational," says Robert Rosen, president of Share Inc., a Chicago-based nonprofit organization of IBM users.

Leading CIOs, recruiters and employment experts agree that whether to build or buy shouldn't be viewed as an either-or question. In fact, they say, the best solution for any organization is one that includes both tactics.

"It's a mixed strategy," says Bruce J.

Goodman, CIO at Humana Inc. in Louisville, Ky. "You want a team that has a lot of A players. And you have to identify and recruit A players wherever they are."

Goodman says companies that build management skills in-house are building loyalty and capitalizing on institutional knowledge, too.

He remembers one IT staffer who showed aptitude for leading others. Goodman put him in charge of the company's help desk, where, after some additional training, he proved his ability to run a team and get things done. "If we hadn't done that," Goodman says, "he might not have stayed around."

Statistics support that assertion. "There's a lot of bang for the buck growing them from within," says Beverly Kaye, founder and CEO of Career Systems International Inc. in Scranton, Pa., and co-author of *Love 'Em or Lose 'Em: Getting Good People to Stay*, Third Edition (Berrett-Koehler, 2005).

Kaye's recent survey of more than 1,000 IT workers at all levels found that exciting work and challenges, along with career growth, learning and development, are among the top factors that keep workers with their current employers.

Barbara Kunkel, CIO at Rochester, N.Y.-based law firm Nixon Peabody LLP, says building skills among existing workers has helped her create loyal staff members who feel passionate about their work.

> It's a mixed strategy. You want a team that has a lot of A players. And you have to identify and recruit A players wherever they are

"People become proud of what they do. You can't buy that. And you can't get it overnight," she says. "And I need consistent, passionate people who can move this organization forward." Of Kunkel's five direct reports, one has been with the firm for 29 years; two others have been there for nearly 10.

Retaining Knowledge

Building a management team from internal staff doesn't just breed loyalty, however. The process also guarantees what Rosen calls "corporate memory" — the knowledge of where things are, how things work together and the unofficial ways projects get done.

He remembers working at one company that hired a CIO who brought in new managers. Those managers then undertook initiatives that had previously failed at the company. "There were a lot of false starts done by the new people," Rosen recalls.

Bringing new people on board can cost tens of thousands of dollars in headhunter and relocation fees, not to mention the costs of disruption in the office, experts say. But training existing staffers to move into management positions can be expensive too.

Young once worked at an engineering company that put a premium on employee retention. So when Young had to fill two IT management positions, she promoted workers who had spent their careers in the company's business division. She sent them to Northwestern University's 18-month executive program to earn master's degrees in IT. The cost? Nearly $100,000.

Outside Advantages

CIOs and other employment experts are hard-pressed to come up with studies and comparisons between the costs of building or buying management skills. Data about the return on investment for each scenario is slim, they say, and most information is anecdotal.

For example, Goodman uses companywide matrices to estimate costs. He says training and development amounts to about 2% of the payroll budget, while the cost to hire workers runs just under 2%.

With those costs about even, Goodman turns to the other benefits that come from external hires. For example, they can bring necessary skills or knowledge to an organization that doesn't have time to build them internally, he says.

Others say hiring new IT managers can also infuse an organization with new ideas, innovative approaches and experience in markets or processes new to the company.

Companies that want to upgrade the level of leadership in a particular role might also have more success if they hire from the market, says Steve Kendrick, president of Kendrick Executive Resources Inc., an IT executive search firm in Dallas. In addition, companies looking for significant change in processes or strategies will likely have more success doing so if they seek management from the outside, he says.

Even those who prefer to build management skills internally readily acknowledge these benefits. Ellen Barry, CIO at the Metropolitan Pier and Exposition Authority in Chicago, says she puts a high priority on training her most talented people and encouraging them "to grow into the professionals they want to become."

On the other hand, Barry says she can't always wait for that to happen. Sometimes you need to bring in new talent to get the skills that you don't have and can't rapidly build, she says. Barry has had to make the tough call of not promoting people who weren't quite ready for management. In those cases, she hired experienced, qualified managers from the marketplace. Then she worked with the internal candidates to make sure they were ready the next time a manager's slot opened up. **52104**

Pratt is a Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

MOST-VALUED Skills

When Pittsburgh-area IT executives recently gathered to discuss their hiring needs, it took a while for anyone to begin talking about the technical expertise they wanted.

In fact, "for the first 15 minutes of the conversation, not one mentioned an IT skill," says Jared Roberts, managing director of the IT industry network at the Pittsburgh Technology Council.

Members of the IT Workforce Board instead said they want people who can work on teams, learn quickly and adjust to changing situations. They want people who understand business.

"The IT leader has to invariably deliver solutions that add measurable business value. If not, then the business discounts them," says Steve Kendrick, president of Kendrick Executive Resources.

Business know-how tops most lists. "A good grasp of business and attention to business details are more important today than in the past," says Stephen Pickett, president-elect of the Society for Information Management (SIM) in Chicago and vice president and CIO at Penske Corp. in Bloomfield Hills, Mich.

The ability to talk money is another high priority. IT managers need a greater understanding of costs, budgets and financial management issues, says Diane Morello, an analyst at Gartner Inc. in Stamford, Conn. They need to know about cost analysis and return on investment. "Most businesses tend to speak the language of money, and most IT people tend to be outside that circle," she says.

That leads to a third skill: the ability to communicate. IT managers need to talk to business people, including those who sit on the board of directors. And they have to do so in everyday language, not technical jargon. "You really need to have the oral and written skills to get your ideas across," says David Luca, president of SIM and CIO at Rockefeller Group International Inc. in New York.

IT managers need to learn how to manage in new ways, as companies expect them to work more often with other business divisions and across geographic distances. They'll also have to know how to motivate people working halfway around the world. "Skills around building employee commitment and motivation are big time," says Louise Axon, senior vice president of leadership development at The Forum Corp., a Boston-based management consultant and training company.

In this age of offshoring and international business, global experience can give a manager a significant edge. Kate M. Kaiser, associate professor of IT at Marquette University in Milwaukee, says foreign-language skills, specifically Mandarin Chinese or Russian, are also helpful, as is global political awareness.

But none of this trumps the need to stay ahead of technology. Umesh Ramakrishnan, the Cleveland-based vice chairman of executive search firm Christian & Timbers, says IT managers need strategic vision and insight more than ever. "The worst thing a CIO can do is implement a strategy that has to be changed again in 24 months," he says.

Two other highly desired skills – leadership and the ability to learn – will help IT managers tie all those other talents together. "To me, the No. 1 capability has got to be leadership. I think that's the most transferable of all of the skills they're going to have to have," says Bart Bolton, an Upton, Mass.-based facilitator for lifetime learning and the facilitator for SIM's Northeast Regional Leadership Forum. "Leadership is the kingpin."

–Mary K. Pratt

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ThinkTank

Get Ready for the Hispanic Nation

You've heard the stats: The fast-growing Hispanic population in the U.S. is 43.5 million strong, and 12.6 million Latinos are already online. Hispanics have about $575 billion worth of spending power and in two generations will make up nearly a quarter of the workforce.

Are your systems ready? Your interactive voice response systems need to have a Spanish-language option, your call centers should have Spanish-speaking agents, and your Web site needs a clear link to content in Spanish.

But only 19% of Fortune 100 companies offer Spanish-language content on their U.S. Web sites, according to reports by Ron Rogowski, an analyst at Forrester Research Inc. And even Web sites that do offer some Spanish text fall down when it comes to allowing actual financial transactions in Spanish or optimizing their search engines for Spanish queries, Rogowski says.

But some companies are getting the message. Verizon Communications Inc. places its Spanish link prominently at the top of its Web page and encourages Spanish-speaking call center agents to promote the Spanish Web site. H&R Block Inc. users can get maps and driving directions to local offices with Spanish-speaking advisers. And Home Depot Inc. even remembered to put its privacy policy in Spanish.

Among state governments, Texas is the only one to provide a full-fledged Spanish-language Web portal for constituents, says Rogowski.

– Mitch Betts

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Best Bits

The most useful parts of recent business and IT management books.

Best Face Forward: Why Companies Must Improve Their Service Interfaces with Customers, by Jeffrey F. Rayport and Bernard J. Jaworski (Harvard Business School Press, 2005)

Nicholas Carr would love this: a book that says real competitive advantage will come from superior "customer service interfaces," not technology. But wait, Nick! The authors go on to say that the key to better customer service is finding the right combination of people and machines for the situation.

Sometimes people are dominant on the front lines (think of call centers), while the technology is in the background helping them work smarter. And sometimes the technology is in the foreground (think of airline ticket kiosks) while people are available as a backup option or if something goes wrong. The people/machine combo could be as simple as roaming clerks who use handheld computers to take fast-food orders when the lines get too long, or it could be as complex as Wal-Mart's inventory replenishment system. "In essence, Wal-Mart is a [supply chain] machine with a human face," the authors say. Probably the most useful part of the book is the last chapter, which provides an "interface audit" – a scorecard for rating your company's customer service interfaces in terms of effectiveness and competitive advantage.

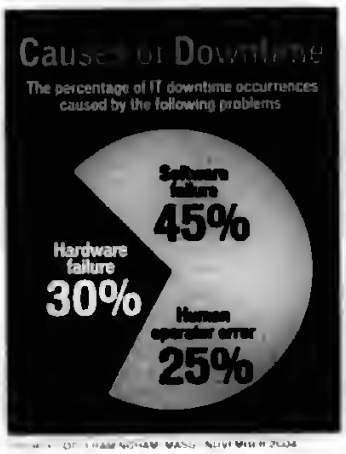
– Mitch Betts

Things to Ponder

■ Privacy already tops the list of consumer worries about radio frequency identification technology, with 69% of consumers saying they are somewhat or very concerned about companies using RFID to monitor transactions and purchasing habits, according to a December 2004 study of 8,500 consumers by Artafact LLC in Fremont, Calif., and BigResearch LLC in Worthington, Ohio.

■ Does your Web analytics software depend on cookies for tracking customer surfing habits? You may need to rethink that business model now that nearly half of North Americans own spyware removal software and regularly delete the tracking cookies, says Bob Chatham, an analyst at Forrester Research Inc.

■ Companies that use e-procurement applications have reduced the amount of maverick, or off-contract, spending by an average of 64%, according to a benchmarking study by Aberdeen Group Inc. in Boston. **52121**



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The IT Economy

■ Some press reports suggest that we're experiencing an IT buyers' market, with CIOs demanding – and getting – price concessions from their vendors. But in a December 2004 survey of 100 CIOs, 61% said the level of discounting by IT vendors hasn't changed and pricing remains relatively stable, according to The Goldman Sachs Group Inc. in New York. One quarter of the CIOs surveyed said discounting is currently increasing, and 14% said discounting is decreasing.

■ When asked by Forrester Research about their top priorities for this year, 868 IT decision-makers at North American companies came up with this top-four list: Deploy or upgrade a major software application, upgrade disaster recovery capabilities, support corporate governance (such as Sarbanes-Oxley Act compliance) and upgrade security.

Buying Intentions

IDC researchers say their index of business IT demand (below) shows that user spending expectations have slipped again. Maybe it's a case of the winter blues, because buyer expectations were low in January 2004, too, and then peaked in August and have been on a downward slide since then, says John Gantz, IDC's chief research officer.

The buyer intent index is based on monthly surveys of 400 to 800 U.S. CIOs and business executives, who are asked about their IT spending expectations for the next 12 months. Results are weighted to be representative of the U.S. market. An index of 1,000 means zero growth. Caveat: Buying intentions don't always lead to real spending.

SOURCE: IDC'S FUTUREMAP, FRAMINGHAM, MASS., JANUARY 2005

ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

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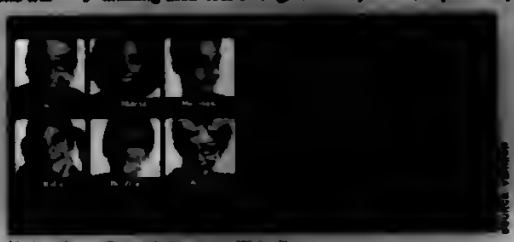

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SOURCE: IDC FRAMINGHAM MASS., NOVEMBER 2004

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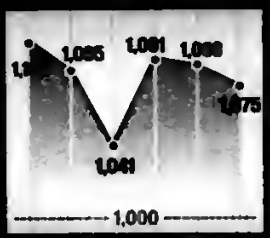

SO You Want To Be a CIO

Technical and business skills, good judgment and good timing will all help, but leadership is the linchpin.

BY JOHN PARKER

IT MENTOR

AN IT DIRECTOR at a small home health care organization recently asked me about how best to achieve his goal of becoming a CIO. The organization was "getting over a downsizing," and he was planning on leaving to pursue his career. I've been giving the question some thought, and here's how I see it.

There is no formula for becoming a CIO. To land the job, four things must happen. There has to be opportunity (that is, an open position), you must be in the candidate pool, you must distinguish yourself from other candidates, and you must be willing to take the job.

There isn't much you can do to create opportunities, nor can you affect their timing, so you should avoid the temptation to try. You don't want a reputation as an opportunist, which would be virtually guaranteed to stall your career growth. As hard as it can be, you must be patient.

But while you're waiting, prepare yourself to take advantage of opportunities. Decision-makers are typically looking for certain personal behaviors and experiences as they fill open positions. You can practice those behaviors and pursue jobs that create the experience that will help you to stand out from the crowd. The following thoughts may help steer you toward your goal.

Become an outstanding leader. It all starts here. There's a big difference between management and leadership. There are a lot of really smart, highly technical managers out of work right now. But for a strong leader with an IT background — particularly with business experience — opportunity not only knocks on the door, it almost rips the hinges off.

How do you become one? You can't become a leader by reading this article or a book on leadership. You have to live it. Establish a set of principles to guide you through tough decisions, and develop the courage to make those decisions and accept the consequences. Enhance your credibility by developing a track record of making and meeting commitments.

Teams voluntarily follow leaders because of their innate authority, not their formal authority, so figure out how to connect with your team on an emotional level. Be willing to tackle tough problems, make hard calls and accept stretch goals. You and your teams will occasionally fail, so be willing to accept responsibility, recover and learn from your mistakes.

Be aware that as a leader, you are onstage. Your teams will learn how to behave from your example, particularly during tough times. You set the tone for your organization's culture and values, so make sure you model the behaviors you want to see in your people.

Think of yourself as a business person. Good CIOs don't run technology shops; they run businesses. The best serve as key members of the executive team running their firm's core business. To be credible within the IT group, you must have a good grasp of technology, and you will be most effective if you have actually done some IT jobs. The same is true with the business community. If you don't have a business background, going back to school for an MBA will help, but running with the business units will be at least as valuable. Learn their language. Understand their strategies. Figure out what they are worried about and where they see opportunity, then develop ways to use technology to help them out.

Get intimate with the numbers. The language of business is money, and if you don't understand how money is made and spent in your company, you won't make it to the CIO level. To effectively communicate with your CEO, board of directors, executive committee and chief financial officer, you must know what drives your company's costs and how to manage them. As a service provider within your organization, in order to be successful, you'll need to understand not only the IT budget, but also every business unit's budget.

Finally, remember the old adage, "Be careful what you wish for, because you might get it." Becoming a CIO can be an extremely rewarding opportunity for the person who is ready. But someone who hasn't prepared himself can feel like a dog who finally catches that truck he's been chasing — only to get run over by it. Do all you can to get ready for the role, and then enjoy. I can promise you it won't be boring. Good luck. **51665**

Parker is executive vice president and CIO at A.G. Edwards & Sons Inc. You can contact him at jparker@agedwards.com.

WHEN OPPORTUNITY KNOCKS

[redacted] ... To do this, a variety of things should occur over the course of time. Your current efforts will work better if you look for opportunities that allow you to grow and add value, rather than being office-bound. These ideas will help you stay on track:

- Pick a company for which IT is critical.
- Look for projects that result in bottom-line benefit.
- Be willing to move laterally, and just vertically, to work on those projects.
- Realize that larger companies will likely grow you experience faster than smaller companies. A midlevel management position in a large company should provide more opportunity to learn, grow and lead than a CIO position at a small company.
- Make sure you're going to something you like, not running away from something you don't. It's during hard times that strong leadership is most needed. The best opportunity could be to stay right where you are and build a better future.
- Show that you can be successful in a variety of settings, by building a track of experience in several areas such as application development, vendor management, computer operations and, ideally, some business functions.

– *John Parker*

Career Watch

ASK A PREMIER 100 LEADER

[redacted] Vice president of application development and quality assurance

Q&A COMPANY Ameritrade Holding Corp., Columbia, Md.

Bartlett is this month's guest Premier 100 IT Leader, answering readers' questions about QA vs. development work and finding an entry-level job in IT. If you have a question for one of our Premier 100 IT Leaders, send it to [redacted] and watch for this column each month.

Is there more of an opportunity for career growth in quality assurance or software development? What are the future prospects for a quality assurance position? I will make two assumptions: that you are already in the technology field and that you realize that the software developer and quality assurance engineer roles are very different. In fact, I believe that they require very different characteristics. I urge you to consider whether you have a passion for one role or the other.

I believe that the prospects for QA professionals are very good. According to statistics released in 2002 by the National Research Council, U.S. companies spent $175 billion in 2001 to repair damage caused by software defects. Companies are realizing that an investment in quality assurance will have a measurable impact on the bottom line. As a result, I see many enlightened companies investing in training for quality assurance engineers, in tools and hardware environments. It's an exciting and satisfying time to be a QA professional.

I just graduated with my bachelor's degree in computer engineering technology. I have very little experience in the field. Where should I go to have the best chance at an entry-level IT job? There are several approaches to take when seeking your first job in a particular field. Many universities offer job placement counseling, since they are familiar with the professional firms in the area. I'd encourage you to explore that option.

Second, don't undersell yourself as you craft your résumé and begin the interview process. Many employers are looking for intelligent candidates who have shown initiative and are a good fit with the culture. Consider how to leverage project assignments you've done as part of your course work. Convey the unique qualities that will make you a likely long-term contributor to future employers. And finally, network. Talk to friends and fellow graduates, and attend job fairs. Most employers realize that the best candidates come by way of referrals from their current employees. **CW 51694**

Job Market Roundup

THE STATE OF THE IT JOB MARKET MAY DEPEND ON WHOM YOU ASK

As the new year began, contradictory assessments of the market were issued from various quarters. Most were at least partially positive outlooks, but that hardly added up to unanimity.

Janco Associates Inc. in Park City, Utah, last month released its 2005 Comparative IT Salary Survey, saying that there was a small decrease in demand for technology professionals and a drop of just under 1% in mean total compensation during the last six months of 2004, despite renewed spending in many segments of the market. It also said that the outsourcing of IT jobs continues to have a negative effect on the U.S. and Canadian job markets, the two countries covered in the study. The bright spot in the study concerned CIOs, especially those at large companies, their mean compensation rose by more than 4% during the period studied.

Also last month, staffing firm Hudson Global Resources reported that its index of job confidence among IT workers rose by 6.9 points in December to 116.3, an increase fueled by workers' belief that hiring is up and layoffs are declining.

IS THAT CONFIDENCE WELL-FOUNDED?

The U.S. Department of Labor reported that in December, the U.S. economy added 9,700 payroll jobs in the area of computer systems design and related services, bringing the total to 1.16 million. Jobs in this field have been on the rise since April and are up by 57,300 positions since December 2003. And employment services firm Challenger, Gray & Christmas Inc. said that U.S. companies last year laid off 23% fewer workers than they did in 2003 and 62% fewer than in 2002. Nonetheless, Challenger also found that employment in the high-tech industry is still in flux, with job losses in the industry totaling 176,113 in 2004 and accounting for 17% of all job cuts.

SO, WHAT'S IN STORE?

One forecast comes from Robert Half Technology. Its 2005 Salary Guide [QuickLink 51675] predicts that average base pay for IT professionals overall will rise 0.5% this year. But certain positions will see greater-than-average increases. Leading that group (see chart below) are systems auditors, whose base compensation Robert Half expects to increase by 5.1% in 2005, to the range of $63,250 to $81,750 annually. Systems auditors assess and document the capabilities of existing systems in advance of hardware and software upgrades, and demand for them is being driven by the need to comply with the Sarbanes-Oxley Act, the Gramm-Leach-Bliley Act and other regulations. And according to the Robert Half Technology IT Hiring Index and Skills Report, 11% of executives polled plan to add IT staff early this year, while 2% anticipate cutbacks. The net 9% hiring increase is up three percentage points from the previous quarter's forecast and six percentage points from the year-earlier projection.

- Jamie Eckle

Projected Fastest-Growing IT Salaries in the U.S., 2005

	2005	
Systems auditor	$63,250-$81,750	5.1%
Pre- and postsales consultant	$53,500-$78,250	3.9%
Programmer/analyst	$52,500-$83,250	3.8%
Instructor/trainer	$43,250-$65,500	2.8%
Network security administrator	$63,750-$90,500	2.3%
Data security analyst	$68,250-$93,000	2.2%
Quality assurance/testing manager	$64,750-$86,750	2.2%
Disaster recovery specialist	$60,500-$90,750	2.2%
Internet/intranet developer	$51,750-$74,250	2.0%
Business systems analyst	$56,000-$80,500	1.9%

Career Watch

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Projected Fastest-Growing IT Salaries in the U.S., 2005

	INCREASE OVER 2004
Systems auditor	
Pre- and postsales consultant	
Programmer/analyst	
Instructor/trainer	
Network security administrator	
Data security analyst	
Quality assurance/testing manager	
Disaster recovery specialist	
Internet/intranet developer	
Business systems analyst	

SOURCE: ROBERT HALF TECHNOLOGY, MENLO PARK, CALIF.

EVENTS

Outsourcing

■ **Feb 21-23, San Diego**
Sponsor: Michael F. Corbett & Associates Ltd.
Topics at the 2005 Outsourcing World Summit include assessing your options, managing and governing strategic relationships, selling outsourcing, improving enterprise efficiency, global sourcing, launching a provider company and win-win strategic partnerships.
www.corbettassociates.com/content/10/78/250/

Wharton Event

■ **Feb. 25, Philadelphia**
Sponsor: Wharton School, University of Pennsylvania
Topics of the 2005 Wharton Technology Conference include VoIP, nanotechnologies, digital media, open-source for the consumer, venture capital opportunities and advice for technology start-ups.
www.whartontechconference.com

ISO 9000

■ **Feb. 28-March 2, Orlando**
Sponsor: ISO 9000 Institute
Topics at the 2005 International Conference on ISO 9000 include strategies for performance and profit; Six Sigma and ISO 9001; a systems approach to planning, measurement and improvement; and tools and methods for improving quality management.
www.iso9000conference.com

Metamorphosis '05

■ **March 1-3, San Francisco**
Sponsor: Meta Group Inc.
Tracks in this 16th annual forum include sourcing, applications, mastering regulations and standards, measurement and modeling, risk and business continuity, and leadership strategies.
www.metagroup.com/us/events.do

HR Technology

■ **March 2-4, Marina del Rey, Calif.**
Sponsor: The Conference Board Inc.
The Strategic E-HR Conference includes presentations on using technology to transform human resources into a strategic function, leveraging employee portals, and virtual systems for career development and coaching.
www.conference-board.org/conferences

PAUL GLEN

Workplace Obligations

WOULDN'T IT BE NICE if every boss came with a standard API?

It would be so easy to look at the interface specifications and know exactly what he expected, in what format he expected it, when you should deliver it, what predictable events would result from your input and how you should handle error conditions. All the politics would go away. Those pesky emotions would become a nonissue. Success would become deterministic.

Sadly, it will never be so simple. Every boss-subordinate connection is a custom job. This is both the promise and the pain of workplace relationships; they are cobbled together not of hardware or software, but of wetware (the gray, squishy stuff between our ears).

The complaints about this are endless from the subordinate side. "I don't know what he wants, and he won't tell me." "She doesn't really understand what I do, so she can't tell me what she expects." "He tells me one thing, and then when I give it to him, he changes his mind." "She says that I have an attitude problem, but I don't really know what that means."

As it turns out, the inability to forge easily understandable, straightforward, repeatable relationships is just as frustrating for bosses as it is for subordinates. Supervisors would love to be able to clearly articulate exactly what they expect so that all their people would understand. Sadly, many managers erroneously believe that they have clearly defined and communicated their expectations, and they just can't figure out why no one else seems to get their vision.

I've developed a rather simple philosophy of boss-subordinate relationships. Although not a detailed specification, it has served me well both as a manager and as a subordinate. It comes in two parts.

Part 1. A subordinate owes the boss and the organization three simple things:

- **Candor**
- **Loyalty**
- **Delivery**

That's it. If I deliver on all three of those things, I can look myself in the mirror and feel that I've fulfilled my part of the employment bargain. Let's take a quick look at each one, because they are deceptively simple.

Candor. We owe the boss honest opinions about important things on the job. As knowledge workers, we are not hired for our muscle power; we are hired for our brain power, so we owe it to the boss to share the fruits of our thought. That doesn't mean that we blather on about every fleeting neural discharge, but if something is important, we need to share our perspective.

Sometimes, this can be an unpleasant obligation. Disagreeing with the boss is not always fun. Some managers are not open to other people's opinions. Some are too insecure to accept them. Some believe that power confers wisdom and that they don't need to listen to anyone else. But the boss's receptiveness doesn't affect the obligation. If a project is running aground, someone has to speak up before it's too late.

Loyalty. I'm not talking about the blind fealty of a medieval vassal to his master, but rather a reasonable modicum of this uncommon virtue.

Ultimately, part of every manager's job is to make decisions. This includes making hard choices that may upset people. If a manager never ticks anyone off, he is probably shirking his responsibilities. If we have shared our opinions with our manager and he makes a decision we don't agree with, we are obliged to get over it and implement his choice. We should not spend endless hours trying to change things post hoc or, worse, trying to secretly undermine the decision.

Of course, there are exceptions to the loyalty rule. If what the boss has asked us to do is unethical, illegal, dangerous or patently self-serving, loyalty ends there.

Delivery. And finally, when we promise to do something, we do it.

Part 2. Bosses owe their subordinates three simple things too:

- **Candor**
- **Loyalty**
- **Delivery**

Although not a detailed API, this simple understanding can go a long way toward smoothing relationships and directing successful careers. What we owe one another in the workplace may be vast, but in some ways it is quite simple. **52033**

WANT OUR OPINION?

For more columns and links to our archives, go to **www.computerworld.com/opinions**

U.S. ARMY WAR COLLEGE Seeks Visiting Professor of Instructional Design. The U.S. Army War College seeks a Visiting Instructional Designer for the academic year 06-07. The successful candidate will be hired under the provisions of the Intergovernmental Personnel Act which governs the temporary assignment of personnel between the federal government and state and local governments and institutions of higher learning. The selected candidate will be responsible for designing/developing innovative case studies, simulations, prototype educational applications and curriculum enhancement tools. Must be conversant with emerging educational concepts and technology and act as an advocate and primary researcher for educational technologies and related instructional methodologies. Must have significant experience and expertise in exploring and exploiting educational technology to enhance education, preferably at the graduate or undergraduate level. This should include working knowledge of the most current educational technologies, applications, and related instructional methodologies. Possess demonstrated ability to prepare, coordinate, supervise, teach, and lecture on subjects relating to educational methodologies and technologies in order to provide faculty development and student training or education. Demonstrate ability to manage or supervise on a graduate level academic program. The applicant will also advise Department of Distance Education faculty on the integration of new technologies/methods to enhance and reinforce student learning. An earned doctorate in a science or technology field of study with experience in professional military education is preferred but not required. The term of service which begins 1 August 05 is for one year. Applicants should submit a letter of interest to Dr. Clayton Chun, Chairman, Department of Distance Education, U.S. Army War College, ATTN: ATWC-ADE, 122 Forbes Avenue, Carlisle, PA 17013-5240 or e-mail to clayton.chun@carlisle.army.mil. For full consideration, applications must be postmarked by 15 March 05.

Siebel Systems, Inc. has employment opportunity in Sandy, UT.
Analyst DBA. Use engineering technology knowledge for large database systems to support the planning, coordinating and administering of computerized databases. Apply knowledge of database administration and management to review technical base definition, structure, documentation, long range requirements, operational guidelines and protection. Ensure the technical accuracy and completeness of data in computer master files and various support tools such as base dictionaries. Use computer engineering knowledge to install and maintain security and integrity tools for large databases. Provide technical assistance on informing and updating policies, procedures and standards relating to database management. Applying knowledge of DB2 UDB, SQL server development and demonstrated technical skills to analyze issues with the company's database systems. Req: BS in CS, CE, EE, Math, MIS, Physics, Business or related field with 2 years experience as Database Administrator, Database Developer or Senior Consultant. Apply online at http://www.siebel.com/adresume or forward your resume referencing CP0105 to: Siebel Systems, Inc. Attn: Corporate Recruiting, 2207 Bridgepointe Parkway, San Mateo, CA 94404. EEOE.

Thomson, Inc. is seeking a Hardware Engineer, Senior Member of Technical Staff to design and develop front end for Digital Satellite Receiver; develop front and solutions using Zero IF tuner ICs for digital satellite receivers; conduct various analyses for F-type connectors involving S-parameter measurements for impedance matching, and perform several tolerance and supply ripple analyses related to the design phase. Must have a Master's degree or equivalent in Electronics, Communications, or Electrical Engineering plus 3 years of progressive experience in electronics and communications engineering. In lieu of Master's degree plus 3 years of experience as described, employer will accept a Bachelor's degree in Electronics, Communications, or Electrical Engineering plus 5 years of progressive experience in electronics and communications engineering. Salary commensurate with experience. Please send cover letter and resume to: HR - Job # 9000, Thomson Inc., 10330 N. Meridian St., Indianapolis, IN 46290.

DEVELOPMENT TEAM SUPERVISOR

Sensormatic Electronics Corporation has an opening in Boca Raton, FL for a Development Team Supervisor.

Responsible for day-to-day activities of a team providing website development and internet application development services. Act as key contact for end users. Lead joint application development and manage outsourced development relationship. Coach, teach, train and guide the team in all phases of the development process. Help identify and evaluate any emerging technologies. Work with open source tools and technologies.

Must possess at least a bachelor's or its equivalent in Computer Science, Electrical Engineering or a related field and relevant work experience including work experience with the following: advanced programming concepts, algorithms, data structures and object oriented techniques, code debugging, integration debugging, application configuration and development environments, open source tools and technologies and Resin, Apache, Java and Linux.

Resume and/or cover letter must reflect each requirement above and specify reference code: DTS/CJP or it will be rejected.

Forward resume to: Nella Nabhan, HR Administrator - TFS HQ, Tyco/Fire & Security, One Town Center Road, Boca Raton, FL 33486-1010.

Programmer Analyst
ColdfusionWeb Developer

Multiple positions available to analyze user requirements, procedures, and problems to automate processing & improve existing computer system.

Requirements: Masters degree in Com. Science, Engineering or related field. Must possess 2 yrs. work exp. in position offered or in developing and analyzing Web application programs. Must be knowledgeable & proficient with Web development technologies, including ColdFusion, Java Script, XML and HTML. Must be exp. with writing complex SQL queries related to database. Must be exp. with designing, developing & deploying Internet and/or web-based technologies and software. Must be willing to travel frequently for short/long term assignments at client sites. Replies with Ref. Code CW2005cold via email (nandan@cogentinfo.com), or mail (Nandan Banerjee, Cogent Infotech Corp., 2581 Washington Rd., Suite 232 B, Pgh., PA 15241).

SENIOR BUSINESS SYSTEMS ANALYST (IT)

Sensormatic Electronics Corporation has an opening in Boca Raton, FL for a Senior Business Systems Analyst (IT).

Work with customers to define business requirements to bridge gap b/w business and technology. Coordinate projects throughout the life cycle to ensure the business needs are met without exceeding constraints. Work with open source tools and technologies. Aid in the creation of proposals by identifying resources, needs and availability in order to set and meet the expectations of all project participants. Perform vendor/software/hardware evaluations.

Must possess at least a bachelor's or its equivalent in Computer Science, Electrical Engineering or a related field and relevant work experience, including classroom training and/or work experience with open source tools and technologies: Resin, Apache, Java and Linux.

Resume and/or cover letter must reflect each requirement above and specify reference code: SBSA/VBG or it will be rejected.

Forward resume to: Nella Nabhan, HR Administrator, TFS HQ, Tyco/Fire & Security, One Town Center Road, Boca Raton, FL 33486-1010.

Programmer Analyst
Microstrategy

Multiple positions available to analyze user requirements, procedures, & problems to automate processing & improve existing computer system.

Requirements: Masters degree in Comp. Science, Engineering or related field. Must possess 2 yrs. work exp. in position offered or in developing & analyzing programs related to database. Must be exp. with business intelligence reporting tools including Microstrategy. Must be exp. in writing SQL (using Toad) on Oracle 8i/9i. Must be exp. in data mastering & applying reporting tools to data mart. Must be willing to travel frequently for short/long term assignments at client sites. Replies with Ref. Code: CW2005micro via email (nandan@cogentinfo.com) or mail (Nandan Banerjee, Cogent Infotech Corp., 2581 Washington Rd., Suite 232 B, Pgh., PA 15241).

Software Engineers needed. Seeking qual. candidates w/ BS or equiv. &/or rel. work exp. Part of req. rel. work exp. must include 3 yrs. working w/ Unix shell scripting (Korn), Oracle & MicroFocus COBOL. Duties include: software dev, testing & client support. Fwd resume & ref. to: Remote Computing Systems, Inc., 9017 Bluestem, Wichita, KS 67207.

SYSTEMS SOFTWARE ENGINEER to provide on-site consultancy to analyze, design, develop and implement systems software in web architecture using Java, JSP, Servlets, CORBA, PL/SQL, Jbuilder, WebMethods and RDBMS, Oracle DB2 and WebSphere in AIX/Solaris and Windows environment. Require B.S. (or equivalent) in Engineering/Computer Science and 8 years experience. 40% travel to client sites within the U.S. required. Competitive salary and benefits. Mail resume to: Human Resource Manager, 4C Solutions, Inc., 1201 7th Street, East Moline, IL 61244.

Auto-Trol Technology Corporation seeks applicants for the position of Software Engineer in Denver, CO, to under close supervision, engage in moderately complex tasks regarding all aspects of the software development life cycle from requirement gathering to design, implementation, testing and documentation for a range of products involving technical illustrations. Position requires bachelor's degree in computer science and working knowledge of graphics systems programming, linear algebra, design and analysis of algorithms, object-oriented methodologies, Axonometric and Perspective systems, C and Visual C++ programming languages and development and maintenance of test scripts on WinRunner or similar tool. Respond by resume to: Lisa Jayne, Auto-Trol Technology, 12500 N. Washington St., Denver, CO 80241 (Reference: TI Advertisement).

SAP Information Systems Specialist

Valero Inc has position opening for SAP Information Systems Specialist. The Information Systems Specialist will be responsible for analyzing requirements, design, development and testing of a seamless integration process. Must have B.S. degree in engineering, comp sci or related degree (foreign degree equivalent accepted) w/ 2 years in position or as software developer, programmer or consultant. Please forward resume to: Jennifer Moreno, One Valero Way, San Antonio, TX 78249. No email or telephone inquiries.

IT Market Analyst needed to create & analyze corporate strategy performance & prospects of business segments in IT services; prep & eval plans & budgets; analyze cost structures, performances & variances; monitor portfolios incl strategy formulation; eval M&A opportunities, fund raising, recruitment & business divpmt. Resume to: Global Consultants, Attn: Hrsma, 25 Airport Rd., Morristown, NJ 07960.

Lead Software Engineers

AEBN, Inc has position opening for Lead Software Engineers, Level I, II. Will design/architecture and develop software applications. Must have M.S. degree in computer science w/ 1 year in position for Level II and 3 years for Level I. Please forward resume to: Brian Ziel, 5300 Old Pineville Road, Suite 160, Charlotte, NC 28217. No email or telephone inquires.

EDI Analyst/Web Developer BS in Info Systems or Comp Sci + 5 yrs exp OR MS plus 2 yrs exp. Exp to include JAVA & internet-oriented programming or dev, EDI translation tools & ANSI X12 standards, dem knowledge of HTML, TCP/IP, FTP, SMTP, POP, HTTP protocols, GUI design principles. Send resumes to: Staffing, PO Box 657, Des Moines, Iowa 50303.

Hatmsys, LLC based in Detroit, MI seeks Software Engineer for Detroit and nationwide opportunities. Requirements include Master's degree or foreign equivalent in Computer Science, Information Technology or related field and three years experience designing and developing J2EE Web-based software applications. Position also requires one year experience working with Struts Open Source Web application framework integrating IBM Main Frame applications using IBM Websphere Application servers developing Web services and implementing service-oriented architecture. Apply via U.S. Mail with resume to: Hatmsys, LLC, 3757 S. Baldwin Rd. #223, Lake Orion, MI 48359.

Network/System Administrator wanted to maintain & upgrade network & develop & maintain web site & e-commerce solutions. Must have Bach. in Comp. Sci. or related field & 2 yrs. network & systems eng. exper. incl configuring & maintaining routers, firewalls, WAN technologies & deploying Authentication & File Servers over Windows 2000 client-server environ & incl exper with Linux server platforms, MS Exchange Mail server & Network Security. Proficiency in Windows 2003 server, Novell Netware client-server & ASP/VB.Net/SQL server 2000 programming. Send resume to: HR, Adaptive Instruments Corp., 577 Main St., Hudson, MA 01749.

Database Admin - engage in database design & admin, web design, recovery & backup plan'g & implementation & user access. Design sites for search engine optimization. Write & design server architecture. Train system users. Analyze, review & alter prog.s. Project developmt. 35 hrs. B.S. in Computer Sci. or Computer Bus. Applics. 2 yrs exp in job offd. Fax resume & salary reqmts to (727) 544-4366. Attn: Ms. Dora-Falcone, GeoPharma, Inc.

Accounting Consultant needed w/Bachelors or Foreign Equiv in Accntg, Fin or Bus. Admin & 1 yr exp to analyze & compile fin info to summarize current & projected company fin. reports. Examine, analyze & interpret the liquidity ratios of corporate customers. Prepare cost profit analyses & prepare cash flow statements, budgeting & forecasting using Oracle Financials, MS Excel, Dbase, Lotus 1-2-3 & Peachtree. Send res. to: Wireless 4 U, Inc., 15028 Manchester Road, Ballwin, MO 63011.

Senior Software Engineers needed. Seeking qual. candidates with MS/BS or equiv and/or rel. work exp. Part of the req. rel. exp. must include 2 yrs working w/ J2EE & SQL Server. Duties incl design & develop web-based software for service industry & provide software support, including unit testing & debugging code. Travel & relocation may be required. Fwd res. & ref. to: Systel Technology Solutions, Inc., Attn: HR, 20380 Town Center Lane, Suite 166, Cupertino, CA 95014.

Software Engg Needed. Seeking qual. candidates possessing MS/BS or equiv. & rel. work exp. Part of the req. rel. exp. must include 3 yrs. working w/ ADS/O & MO Series & 3 yrs. applying Six Sigma Process in the IT solutions. Exp. can be simult. Duties include: Design & dev. soft. app. Apply Six Sigma Process to ensure quality. Wrk w/ ADS/O, LRF, IDOM, Easytreive, IDMS & MO Series. Travel & relocate may be necess. Fwd res. & ref. to: Sastech Corp., 12158 Duane Swift Pkwy, Jefferson City, MO 65109.

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Senior Software Engineer/ Programmer Analyst/ Systems Analyst/ Database Administrator/ Software Engineer/ Programmer Analyst/Systems Analyst/ Database Administrator

Must have masters or equivalent degree for senior positions. Bachelors degree and/or experience in computer science engineering or related field and experience in some of the following skills

Microsoft Technologies (Visual Basic .NET ASP) C/C++ Java Cold Fusion CRM (Siebel Clarify), ERP (SAP PeopleSoft, Oracle Apps) Middleware Technologies (Orbix Corba, Tibco Vitria) Datawarehousing Tools (Informatica Data Stage Abinitio Business Objects Cognos, Micro Strategy Brio) Mainframe (Cobol CICS JCL VSAM) AS400 Quality Assurance (Win Runner Load Runner Silk Quickpro Manual Testing) Databases/ Administration (SQL Server/ Oracle/ DB2/Sybase) MS Windows (95/98/NT/ 2000 XP, Exchange) UNIX (Sun Solaris, HP AIX) Linux

Work Location Maine and/or any unanticipated location in the U.S. (must be able to travel or relocate nationwide) Attractive compensation package 40 hrs/week.

Mail your Resume to hr@gemstech.com Human Resources Director, Gemstech, Inc. 477 Congress Street, 5th Floor Portland, ME 04101-3427

Computer Scientist

Responsible for R&D of hardware & software formal verification framework. Duties include design & implementation of formal specification language, new automated verification algorithms, overall system infrastructure, perform research in formal methods area, write research papers & technical reports. This position requires Ph.D. or CS with doctoral dissertation emphasis in software engineering & formal methods for analysis & verification of software & hardware systems. Research background to include design implementation, use of model checkers, static analyzers, compilers, software verification, implementation & design skills including object technology programming skills including C++, Scheme, Emacs-Lisp & Java, working knowledge of automatic theorem proving & formal semantics of programming languages. This position is located in Menlo Park, CA. Please apply indicating job# 2251, via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA.

Software Engineer

Specify, design, develop, and test embedded control systems software and hardware design; simulation, modeling, development, testing/debugging, integration, validation & documentation. Required: must have Bachelor's Deg. in CS, E/E, or Technology related equiv. degree, 10 years exp. in job offered. Exp. w/ programming embedded control systems in C++, 8051 Assembly & VHDL languages as well as in PC 104-based Linux. Exp. w/ direct hardware-level programming & circuit design; w/ hardware-level device drivers & programmable logic. Exp. w/ bench development of hardware-level prototypes, including creating test procedures for debugging/ test & documentation to MIL Specs. Project responsibility from start to finish. Pls. send resume to RF Products, Inc. Dave & Copperwood Str., Camden NJ 08103 (EEOM/F)

A position is available for a Senior Technical Advisor for a software developer in the healthcare industry. The company is located in Durham North Carolina but the job can be performed from anywhere in the United States. The Senior Technical Advisor will be primarily responsible for providing technical expertise in resolving difficult or complex problems escalated from support staff. Specific responsibilities include testing network utilization of products in lab conditions and on customer's networks and reviewing and approving changes to client data and programs. Candidates for this position should possess an associate degree in Engineering Technology or a related field and at least 1 year's experience providing technical support in the healthcare industry including Novell UNIX and Btrieve, planning, installation, configuration and support of network infrastructures (LAN/WAN FDDI or cable) network naming process, and conventions (TCP/IP tables) and database programming. Apply with resume by mail to Shelley Ayers Per-Se Technologies, Inc., 300 West Morgan Street Suite 175 Durham North Carolina 27701

SOFTWARE ENGINEER to design, develop, test and maintain client/server and n-tier applications on Windows and UNIX platforms using C, C++ VC++, Visual Basic, ActiveX, COM Java Servlets SQL XML Technologies, Object Oriented Design and Analysis, UML Data Modeling Distributed Databases and IIS Design and develop database driven applications for the transportation, public health, environmental Require Master's degree in Computer Science/ Engineering, or a closely related field. Must have a demonstrated ability to perform the stated duties gained through academic coursework/ previous work experience. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to Ayan Sengupta US Computing Inc. 2527 Devine Street, Suite 200 Columbia, SC29205. Attn: Job AY

A position is available for a Quality Engineer Analyst II in Atlanta, Georgia with a technology solutions company. The Quality Engineer Analyst II will be primarily responsible for developing designing and implementing tests and evaluating results for all product components. Specific responsibilities include creating test paradigms, developing regression tests and associated code, developing test suites, performing crash testing, stress testing, and error conditioning testing. Candidates for this position should possess a Bachelor's degree in Computer Science or a related field and at least 2 years' experience with relational databases including SQL, regression, integration, functional and stress testing, writing test plans, test scripts and technical documentation, Windows operating systems and issue tracking software, and demonstrated knowledge of C programming and test lab set up including SW installation, HW configuration, and networking computers. Apply with resume by mail to

Vickie Olsen
Radiant Systems, Inc.
3925 Brookside Parkway
Alpharetta, Georgia 30022

Systems Analyst/Programmer Consulting. Must have a Master's degree or equivalent in Computer Engineering, Computer Science, Information Systems or Engineering and 3 years experience as a Programmer Analyst (will also consider B.S. degree and 5 years of progressive experience in the field as the equivalent to a US Master's degree and 3 years of experience) the experience must include the design development implementation and maintenance of multi-tier client/server systems utilizing sophisticated technologies such as COBOL, CICS, DB2, VSAM, Endeavor, JCL and SQL/QMF, File Aid, Xpeditor on IBM mainframes. Responsible for the design development implementation and maintenance of highly complex multi-tier client/server systems utilizing sophisticated technologies such as COBOL, DB2, VSAM, CICS, JCL, SQL/QMF, File Aid, Xpeditor and Endeavor on IBM 08/390 mainframe operating systems. Work with client management to identify and specify complex business requirements and processes for modification of new and current software programs. Conduct performance and model testing, report generation, troubleshooting, debugging and coding. Participate in process design, end-user training and systems support. $66,790 yearly. Send resume to DWS Attn: Erlinda Anderson, Job # 8166444, 140 E. 300 S., SLC, VT 84111

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, test and maintain application software systems using ASP, VB, ASP.NET, VB.NET, C#, SQL Server, Oracle, VB Script, Java Script, XML, XSLT, IIS, MTS, HTML, DHTML, COM, DCOM, Crystal Report and Active Reports under Windows NT/ 2000/2003 operating systems. Require Bachelor's degree (or equivalent) in Computer Science, a Scientific discipline or a closely related field with 2 yrs of exp in the job offered. Each 3 yrs of progressively responsible work exp in the field will be considered equivalent to 1 yr of college education. Extensive travel as assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to Popular Tech, 14151 Newport Avenue, Suite 204, Tustin, CA92780 Attn: JobNV

OmniPros, a worldwide provider of software solutions seeks motivated Software Engineers, Network Administrators/ Engineers, IT Analysts, and Business Development/Technical Operations Management. Multiple Positions available in Cincinnati, OH and San Jose, Ca. Please e-mail resume to careers@omnipros.com fax resume to 408-944-0718, or mail resume to OmniPros Ltd 99 W. Tasman Drive, Ste 205, San Jose, CA 95134

Software Professionals' RS Software, a leading globally positioned software development and consulting firm needs programmer/analysts, willing to relocate at employer's expense to its multinational clients nationwide with exp. in the following skill mixes: COBOL, CICS, DB2, SQL Server, Turbo Image, MPE-ix on HP3000 platform C, C++, VC++, MFC, Oracle and OOAD on embedded technology MVS, JCL, 6450B, Fileed, Xpeditor, C, C++, Unix, COBOL, CICS, DB2 and MQ Series on credit card applications. Send resume to: HR, RS Software (I) Ltd., 1900 McCarthy Blvd., #103, Milpitas, CA 95035.

Systems Analyst/Programmer Consulting. Must have a Master's degree or equivalent in Computer Engineering, Computer Science, Information Systems or Engineering and 3 years experience as a Programmer Analyst or Systems Engineer (will also consider B.S. degree and 5 years of progressive experience in the field as the equivalent to a US Master's degree and 3 years of experience) the experience must include the design development and implementation of highly complex information systems. Work with client management to analyze business requirements and identify solutions for complex business technology systems and object-oriented systems. Conduct performance and model testing, report generation, troubleshooting, debugging and coding. Participate in process design, end-user training and systems support. $66,790 yearly. Send resume to DWS Attn: Erlinda Anderson, Job # 8166441, 140 E. 300 S., SLC, VT 84111

Computer Scientist

Responsible for performing basic research in intelligent agent systems & applying the results to challenging real-world problems. Responsibilities will include managing maintenance & extension of existing BDI (Belief, Desire, Intention) agent software & leading research efforts in the area of robustness for agent systems. Requires PhD in computer science with doctoral research & dissertation emphasis in BDI agent systems plus five years experience in the application of BDI agent systems to real-world problems. Requires publication record in BDI systems. Background must include theoretical foundations of BDI agent systems, programming in Prolog, Python, Java, and Lisp, software engineering, project leadership experience. This position is located in Menlo Park, CA. Please apply indicating job# 2263 via our website @ www.sri.com or mailing address at 333 Ravenswood Ave, Menlo Park, CA 94025. Attn: Employment Dept. EOE/AA.

SOFTWARE ENGINEER to design, develop, implement and test application software using Java, J2EE, JSP, WebLogic, WebSphere, Tomcat, XML, RMI, IIRC, Servlets, Java Applets, Java Script, C and Oracle under Windows and UNIX operating systems. Require: M.S. degree or Computer Science/ an Engineering discipline or a closely related field with 1 yrs of exp in the job offered, or as a Programmer/ Analyst. Extensive travel as assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Sudhakara Ravoori, Sai Technical Services, Inc., 626 WendoverDrive, Ridgeland, MS39157. Attn: JobSK

Computer/Engineering

We currently have an opportunity in Seattle, WA for VP of Engineering. Some travel required. Bachelors in CS, Bus or related field & 8 years executive level high-tech industry exp required. You may send a resume to Vista Corporation - Staffing Manager, 220 West Mercer Suite 300, Seattle, WA 98119 Fax: (650) 622-9599 or email your resume to jobs@vista.com and specify JobID#10.37.04J with your submittal

Senior Development Engineer (multiple openings) San Jose, CA Req: Master's degree (or foreign equiv.) in comp. science or comp. eng. & 2 yrs. of exp. in the job offered or 2 yrs. exp. performing C dev. in Linux. (In lieu of Master's degree will accept Bach. degree (or foreign equiv.) & 5 yrs' progressive post-baccalaureate exp. as stated.) 1 yr. of stated exp. must include using network protocols in kernal & util. real time, zero copy & embedded solutions design. Must pass company's technical review. Research, design, develop & maintain key elements of advanced multi-user enterprise & server provider applications for IP telephones & mobile devices. Forward resume by e-mail to citrixrecruiting@citrix.com or by mail to Citrix Systems, Inc., 851 W. Cypress Creek Road, Ft. Lauderdale, FL 33309. Must reference job code 28713 in subject line of e-mail or in written response. EEO/AA Employer.

SENIOR SOFTWARE ENGINEER to lead a team in the design, development, testing, implementation and support of internet based financial application software using C#, ASP.NET, XML, HTML, Java Script, ASP, Visual Basic, IIS, PL/SQL, Oracle, SQL Server, Crystal Reports and Rational Rose under Windows 2000/NT, UNIX and DOS operating systems. Mentor and supervise junior engineers and programmers. Require B.S. degree in Computer Science/Engineering, or a closely related field with 5 yrs. of progressively responsible exp. in the job offered or as a Programmer/ Systems Analyst. Competitive salary offered. Send resume to Cheryl Escobar, Harbor Payments, Inc., 1900 Emery St. NW, 2nd Floor, Atlanta, GA 30318. Attn: Job PE

SOFTWARE ENGINEER to design, develop, test and maintain computer software for various business applications and eCommerce solutions using ASP, VB, SQL Server, Visual Interdev, JavaScript, DHTML, HTML and CSS on Windows 2000/NT platforms. Require M.S. degree in Computer Science or a closely related field with 2 yrs of exp in the job offered or as a Programmer/ Analyst or Programmer. Experience gained before or after earning the degree will be accepted. Extensive travel on assignment to various client sites within the USis required. Competitive salary offered. Send resume to: Donna Marie Kurz, American Computer Technologies, 2200 Lucien Way, Suite 195, Maitland, FL32751. Attn: Job RG

SENIOR PROGRAMMER/ANALYST to analyze, design, develop, maintain and implement Oracle applications focusing on HR, Payroll, Advance Benefits, OTL and Financial modules using PL/SQL, SQL Plus, SQL*LDR, Oracle Developer 2000 and SQL Server. Require B.S. degree or Computer Science/Engineering, or a closely related field with 2 yrs of exp. in the job offered, or as a Programmer. Extensive travel on assignments to various client sites within the U.S.is required. Competitive salary offered. Apply by resume to BrinivasaR. Manne, Methodex Consulting Services, Inc., 1517 W. Irving Blvd., Irving, TX75061. Attn: Job DP

Technology Company seeking Programmer Analyst and Senior Programmer Analyst for Multiple Openings. Positions Requirements vary and environments may include Actuate, Siebel, SAP, Informatica, J2EE, Web Sphere.

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All Positions require extensive travel and/or relocation; attractive compensation package. Send Resume and Cover letter to: Human Resource Director, Optimum Technology Solutions, Inc., 111 Acklen Park Dr. Suite E105, Nashville, TN 37203.

SOFTWARE ENGINEER in Lincroft, New Jersey to design mobility solution to achieve seamless switching of active calls. B.S. in Electrical Engineering and two (2) years experience as System Engineer Test engineer Soft-ware Engineer or related position with experience using Linux and Windows CE. VoIP using SIP signaling protocol, PSTN analog trunk circuitry, WiFi and cellular GSM wireless technologies. DNS functionality, DHCP server and AAA enterprise servers required. Competitive salary and benefits. For prompt consideration, please submit your resume/CV with the following codes included to: D-COMPUTER/ 16275BR Avaya Inc. P.O. Box 549248, Suite 188, Waltham, MA 02454-9248. EOE.

SOFTWARE ENGINEER, Senior Level (Yonkers, NY)-Full Time. Develop application interface screen in ASP.NET code using GUI tools that execute complex VB.NET & JavaScript validation routines. Write T-SQL stored procedures according to high level specification & design conventions. Build internet applications in the medical care arena, moving from prototype to execution with support to 200+ users. Supervise a team of 4 programmers. Bachelor's degree or equivalent in Comp. Sci., CIS, MIS or related field req'd. 4 yrs. exp. req'd. At least 2 of those years in healthcare IT industry developing .NET. Send CV to Emerging Health Information Technology, 3 Odell Plaza, Yonkers, NY 10701. Fax 914-457-6206. Attn: David Fleicher

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Telecom

new services and address complaints about billing and poor network connections.

"I care a lot about SBC buying AT&T, and it's going to be a matter of 'wait and see what happens' . . . since the planned layoffs won't happen right away," said Cathleen Lilli, director of infrastructure services at Konica Minolta Business Solutions USA Inc. in Ramsey, N.J. One positive sign of consistency, she said, is that SBC announced that it will not close down AT&T's network operations center in Bedminster, N.J.

Honoring Contracts

In January 2004, Konica Minolta signed a two-year, $2.7 million contract with AT&T for an IP-based virtual private network across 92 U.S. locations serving 4,500 workers. It also signed on with AT&T for local and long-distance voice services that were formerly provided by MCI and Sprint Corp. "So far, we're happy with AT&T," Lilli said.

The contract includes an option for a third year. But if SBC makes layoffs that affect service for Konica Minolta, "that's going to be my out," Lilli said, citing the terms of her AT&T contract. "And SBC has to honor that contract; that's my position."

IT managers at Fireman's Fund Insurance Co. in Novato, Calif., plan to meet with SBC this week to go over potential changes that could take place as a result of the acquisition, said CIO Fred Matteson. On Jan. 12, AT&T announced a five-year, $42 million contract with Fireman's Fund for an IP VPN that will support 4,500 workers in 60 locations and replace voice and data networks from multiple vendors.

"My general evaluation is that the SBC purchase makes sense," Matteson said, noting that the combination of SBC's size and AT&T's reputation for providing good network services to corporate customers should benefit the merged company.

SBC Chairman and CEO Edward Whitacre Jr. and David Dorman, his counterpart at AT&T, sought to ensure corporate customers that the combined entity will serve their interests, saying during a press briefing that it will have greater financial, technical and marketing resources.

But some current customers blasted both companies for poor customer service.

"SBC is horrible. We can't get away from them fast enough," said Peter Schwei, telecommunications supervisor at Charter Steel Inc. in Saukville, Wis. Schwei said the steel producer is about to announce a voice and data contract with another carrier, after years of experiencing almost monthly outages at its facilities and frequent billing irregularities with SBC.

A telecom manager at a Midwestern distribution company said she had been working to address an SBC-related outage until 2 a.m. the night before SBC announced that it was buying AT&T. Maybe AT&T can improve on SBC's poor customer relations in handling outages, suggested the manager, who asked not to be named.

> **"SBC is horrible. We can't get away from them fast enough."**
>
> **PETER SCHWEI**, TELECOMMUNICATIONS SUPERVISOR, CHARTER STEEL INC

But Tim Clement, a telecommunications analyst at Maine Medical Center in Portland, said he thinks SBC could only improve on AT&T's customer service record. "I can't imagine that it could possibly be more difficult than it is now trying to get anything done with AT&T," Clement said. "If something's not working, like a circuit, it's extremely difficult to get anybody at AT&T to help."

Network capacity is so plentiful that consolidation among carriers is inevitable, several network managers said.

"Fewer competitors means less choice," said Davidson Scott, vice president of infrastructure at Michael Baker Corp., a global engineering and energy firm in Mooo Township, Pa. "However, technology marches on, and options always emerge. SBC/AT&T will not be able to take customers for granted."

The view from network managers in Europe is that SBC is not at all well known there and that the combined entity would do well to hold on to the globally recognized AT&T brand name, said Ewan Sutherland, chairman of the International Telecommunications Users Group in Brussels. "Outside the U.S.A., SBC has a very, very low brand recognition. Now, if it retains AT&T branding, values and the like, then it could well continue, especially if more money is invested," he said.

IT managers in Europe and elsewhere felt burned by SBC's move in the late 1990s to invest in network operators in Denmark, Belgium and South Africa only to eliminate or reduce its involvement last year, Sutherland said. **52377**

JUST THE FACTS

Merger Highlights

- **SBC is buying AT&T** in a stock-swap transaction currently valued at about **$16 billion.**
- **Edward Whitacre Jr., SBC's chairman and CEO,** will retain those positions after the acquisition
- **AT&T Chairman and CEO David Dorman** will become president of the combined company
- More than **12,000 layoffs** are expected, on top of **7,000 already planned** at SBC this year and **12,500 cuts** announced at AT&T
- **Required approvals from** various federal, state and international bodies will likely take a year to secure.

Users Advised to Review Contracts, Consider Alternatives

CORPORATE USERS need to assess their contracts with network services providers and make plans for coping with the long-term consolidation of the telecommunications industry, several industry experts said last week.

"Enterprise customers need to pay more attention to regulatory processes than in the past because the competitive forces that have protected them will be weakened," said Colleen Boothby, an attorney at Levine, Blaszak, Block & Boothby LLP in Washington.

Boothby's firm tracks Federal Communications Commission procedures affecting network operators and represents large companies in contract negotiations with the carriers. It also works with a group of 19 very large corporations called the Ad Hoc Telecommunications Users Committee.

With former regional Bell operating companies (RBOC) such as SBC now entering the business long-distance market, "there are all kinds of opportunities for mischief," Boothby said. The RBOCs "don't know how to play in this market, don't have the account teams and support and are not as good on contract terms," she asserted.

Boothby said she also worries that if vendors aren't regulated closely, they "will revert back to the practices of the 1980s," when customers often were told that they could obtain new network services only if they bought telecommunications equipment from the carrier they had chosen.

Team Concerns

For now, the top concern for AT&T users is what might happen to their account teams, said Jim Blaszak, another attorney at the law firm. "Users need to gird themselves for the possibility that current teams will change and shrink," Blaszak said.

Even if a company has a contract that limits its carrier's ability to downsize the account team, employees assigned to the team could still be laid off, Boothby added. "If people are laid off, they're laid off," she said. "So, what good does the contract language do you?"

Network managers should look closer than ever at switching to alternative carriers in the U.S. and in international markets, said Gartner Inc. analyst Eric Paulak. Users also may want to evaluate the idea of hiring a systems integrator to manage all of their voice and data network services, he added.

- Matt Hamblen

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Ray's Return

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Think this is some obscure industry sideshow? Think again. Yarro was the architect of The SCO Group's assault on Linux and its corporate users. Yarro used his position to turn a Noorda-funded Linux start-up named Caldera into the anti-Linux litigation machine SCO.

But now Ray is back, and Yarro is gone. And that means . . . what?

For Noorda, it means a return to the spotlight. Until the mid-1990s, he was a true IT industry heavyweight, the man who grew Novell from a little Utah company into a powerhouse. Novell's NetWare was *the* LAN operating system that helped PCs gain a foothold in corporate IT.

Then Noorda decided to go after Microsoft head-on. As Novell CEO, he bought Unix from AT&T and added WordPerfect and Quattro Pro to compete with Word and Excel. That made Novell's board nervous, and it pushed the aggressive Noorda out in 1994. He was 70.

He didn't exactly slow down. Noorda had already earmarked his billion-dollar fortune for charity after he died. He became a venture capitalist to make the pile even bigger. His investments in Utah high-tech start-ups did well. One of those bets was on Linux in 1995, when a Noorda start-up called Caldera launched an early commercial Linux distribution.

And in 1996, Noorda bankrolled a lawsuit accusing Microsoft of unfair competition against an MS-DOS competitor named DR-DOS. Microsoft eventually paid $275 million to settle the case.

Finally, in 1998, Noorda stepped away, handing over day-to-day control of Canopy to Yarro. That's when things got ugly.

According to a lawsuit filed by Noorda and Canopy in January, Noorda trusted Yarro to do what was right for Canopy and the charities it would someday feed. Instead, over the next six years, Yarro granted himself and two associates most of Canopy's stock, along with more than $20 million in allegedly improper bonuses and more than $100 million in stock options. Noorda wants that money back.

Yarro has filed his own lawsuit, claiming that by 2003 Noorda's memory and health were bad and he "became incapacitated and/or subject to undue influences." He says Noorda was manipulated into firing him by Yarro's rivals, including Noorda's daughter. Yarro and his associates want their jobs back, plus $100 million, and they want Noorda kicked off his own board.

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So when he takes control of SCO's Linux litigation, we can be pretty sure one set of lawsuits will go away almost immediately: the ones aimed at corporate Linux users. At 80, Noorda may have lost a step. But he'll never be so far gone that he'll think it's a good idea to sue his own customers.

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FRANK HAYES *Computerworld*'s senior news columnist has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Hard Problems, Easy Solutions

This classified research lab is essentially a steel vault with interlocking electric doors. "Power was lost one morning, the backup generator failed, and people in the lab were trapped in utter darkness for a long hour," says a pilot fish there. An investigation reveals that the generator was never tested, so management moves quickly to make sure the incident is never repeated: "Within a week," fish reports, "every employee on the project was issued a glow-in-the-dark light stick."

SHARK TANK

Aha!

Attorney calls his firm's help desk, complaining that the sound isn't working on his PC. "He had gone into the volume icon at the bottom of his screen, and the volume was turned up," pilot fish says. "I talked him through some more settings in the Control Panel for sound volume. We finally got down to a setting called 'speaker volume.' I asked him what that was set at. He said, 'Sixty percent or so. But you know, I don't have speakers.'"

Details, Details

Pilot fish's company is bought by a much bigger outfit, and he figures it's a great new opportunity – until the new boss speaks at an all-hands meeting. "First he talked about how his company had 50 stateside developers when it was bought by the new parent firm," fish says. "Most of the speech was about how they were going to streamline the company to make it more competitive. At the end of his speech, he casually mentioned how they only have five stateside developers doing prototyping work, and everything else is sent to India. When I got back to my desk, I started sending out résumés."

By the Numbers

Support pilot fish needs a port to be opened in the newly installed company firewall. So he instructs trainee to ask firewall admins to open Port 3456, https outgoing. "Just tell him: Port three, four, five, six, https outgoing," fish says. Phone rings 15 minutes later. Do you really want Ports 3, 4, 5 and 6 opened, and why? asks firewall admin. When trainee returns, he proudly tells fish, "The firewall guy asked if I wanted 3456 https outgoing, but I specifically told him no, we really need 3, 4, 5 and 6."

WYSIWYG

New user swears she knows her password but can't log in. "I try her password and log right in, so I ask her to try again," support pilot fish says. "Then I notice that as she says each letter, she's hitting the asterisk key. Turns out she watched other people log in and could only see stars, so that's what she tried over and over."

THAT'S SHARKY: *-*-*-*-*-*. Send me your true tale of IT life at sharky@computerworld.com. You'll snag a snappy Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at computerworld.com/sharky

FRANK HAYES ■ FRANKLY SPEAKING

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